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ABSTRACT

The 15 papers in this collection discuss various aspects of computer use in libraries and several other aspects of library service not directly related to computers. Following an introduction and a list of officers, the papers are: (1) "Criminal Justice and Related Databases" (Kate E. Adams); (2) "Software and Hard Thought: Searching with a Microcomputer" (John Montag and Michaelyn Burnette); (3) "Converting to ALIS II--Cure-All or Snake Oil?" (Anita I. Cook and Sandra S. Herzinger); (4) "Trouble Shooting or Shooting Your Trouble" (Joseph A. Starratt); (5) "The Role of Statistics in Managing Library Instruction Programs" (abstract only--Scott Stebelman); (6) "Systems Dynamics and Libraries: Proof of Concept" (John Paxton and Carol A. Singer); (7) "New Loan Policy: A Prescription for Calvin T. Ryan Library" (Sharon L. Mason); (8) "A Beginner's Guide to Compiling Journal Lists for High Usage Subject Indexes via the Microcomputer" (Gale K. Gember); (9) "Library Systems in Nebraska" (Ella Jane Bailey); (10) "The Library International Affairs Committee at the University of Nebraska at Omaha" (Carole A. Larson); (11) "The Great Plains Experience in Northeast Nebraska--An Academic Outreach" (Jack L. Middendorf); (12) "Integrated Library Systems in Context" (Carroll Varner); (13) "Scenes from the Reference Desk: A Social Interactionist Account" (Virginia Moreland); (14) "Microcomputer Selection for Academic Libraries: A Guide and Checklist of Methodologies" (Mel Bohn); and (15) "Using the Microcomputer for Library Management Functions" (Marjorie B. Wannarka). (THC)

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1984 SPRING MEETING

PROCEEDINGS

NEBRASKA LIBRARY ASSOCIATION
COLLEGE AND UNIVERSITY SECTION

BELLEVUE COLLEGE
BELLEVUE, NEBRASKA

APRIL 20, 1984

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"COMPUTERS: CURE-ALL OR SNAKE OIL?"

PROCEEDINGS

From The

1984 SPRING MEETING

Of The

NEBRASKA LIBRARY ASSOCIATION

COLLEGE AND UNIVERSTITY SECTION

Held At

BELLEVUE COLLEGE

BELLEVUE, NE

APRIL 20, 1984

Valerie I. Krzywkowski
EDITOR

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NEBRASKA LIBRARY ASSOCIATION

COLLEGE AND UNIVERSITY SECTION

INTRODUCTION

"Computers: Cure-all or Snake Oil?" was the question addressed at the 1984 Spring Meeting of the College and University Section of the Nebraska Library Association. This theme illicited papers on all aspects of computers in libraries that document our successes and failures, our joys and frustrations with computers. Several papers deal specifically with computers: online circulation systems, techniques of searching databases, selecting a microcomputer, compiling a serials list with a microcomputer, analyzing problems of computer systems, library management with the microcomputer, and integrated library systems.

Other papers discuss various aspects of library service not directly related with computers: the development of a loan policy, various aspects of reference service, and the development of library systems in Nebraska. Outreach activities of libraries are addressed in papers dealing with international affairs and the teaching of the Great Plains Experience.

The number and variety of papers presented at the Spring Meeting provided for an exciting program. The Executive Board of the College and University Section thanks Bellevue College and all participants for their contributions to a successful Spring Meeting.

Valerie I. Krzywkowski, Secretary
Nebraska Library Association
College and University Section

September, 1984

NEBRASKA LIBRARY ASSOCIATION

COLLEGE AND UNIVERSITY SECTION

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CRIMINAL JUSTICE AND RELATED DATABASES

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ABSTRACT

Online access to bibliographic literature and numeric data has brought a new dimension to research, teaching, and library instruction in the discipline of criminal justice. This paper will focus on the scope of criminal justice and related social science databases. Specific factors to be addressed include type of publications indexed, presence and quality of controlled vocabulary, viability of free-text searching, currency of the databases, and price structure. Special features of selected databases will be noted. Judgments as to the efficacy of searching criminal justice topics online will be offered.

Online searching has added a new dimension to research in the field of criminal justice. Use of the computer permits rapid retrieval of literature, bringing up citations in a matter of seconds, saving the researcher minutes or hours of manual searching.

The computer allows the searcher to combine multiple concepts simultaneously. Online searching allows retrieval through numerous access points -- author(s), title, journal name, language, subject descriptors, to name a few -- some of which are not available as access points in print sources. Also, in many databases, the abstracts are searchable; this permits more thorough and comprehensive searching. The capability of searching abstracts is especially valuable when the searcher is looking for a current word or concept that is new in the literature and has not yet become an established descriptor. In addition, the computer can complement a library's print collection of indexes by providing access to files available only online, as well as to those indexes that the library does not own in print format.

This paper will briefly review databases that serve the field of criminal justice. The discussion will be limited to those databases available through DIALOG. I will look at several factors -- type of publications indexed, presence and quality of controlled vocabulary, viability of free-text searching, currency of the files, and price structure. Special features will be noted. Some comments as to the efficacy of online searching in the field of criminal justice will be offered.

Two databases that specifically index criminal justice materials are Criminal Justice Periodical Index (CJPI) and National Criminal Justice Reference Service (NCJRS). Numerous social science and multidisciplinary databases also are useful when searching criminal justice topics. Those databases will be discussed selectively.

Criminal Justice Periodical Index, file 171 on DIALOG, is produced by University Microfilms International. CJPI indexes 120 English-language periodicals in the areas of criminology, criminal law, juvenile delinquency, corrections, and police. Scholarly journals, magazines, newsletters, and law reporters are indexed. Reviews of books, periodicals, films, and reports have been indexed since 1980. The scope of indexed material is limited to U.S., British, and Canadian publications.

The Basic Index is limited to title and descriptor. All meaningful individual words and character strings in the title are searchable. Additional Indexes are author, journal, and publication year.

The print index is the source for the controlled vocabulary. Library of Congress Subject Headings are supplemented with new terminology. Free-text searching should be used to retrieve the most current words and concepts.

The L operator is a useful feature when searching in CJPI; this links main headings with subheadings. This feature permits retrieval of the subject heading Criminal Statistics--Great Britain.

The descriptor field includes names of people, organizations, and cases. Personal names are indexed in inverted order. All federal government organizations of the United States are entered with U S, e.g., U S Internal Revenue Service. Police departments are indexed under the name of city or county of jurisdiction, e.g., Lincoln (Neb.) Police Department.

A typical record in CJPI has two or three descriptors. Since searching is limited to the descriptors and meaningful words and character strings, retrieval is not comprehensive. To maximize recall, the searcher should use both the controlled vocabulary and free-text searching.

A peculiarity of this file is that the records do not print out in chronological order in terms of publication dates. The .SORT command for online types and PRINT command for offline prints are thus necessary when currency is an important factor.

CJPI has been online since 1975. As of January 1984, 103,000 records have been loaded. Updates occur monthly. Currency of the articles appears to lag about five or six months behind loading.

Connect cost per minute is $1.02 (Uninet) or $1.05

(Telenet or Tymnet) as of April 1984. There are no online type charges.

NCJRS, file 21, is the document collection of National Criminal Justice Reference Service, which is an information clearinghouse sponsored by the National Institute of Justice. The scope of this file covers practical and theoretical aspects of law enforcement and criminal justice, such as police, courts, corrections, juvenile justice, and community crime prevention.

More than 235 domestic and international periodicals are indexed, as are publications from the National Institute of Justice, National Institute of Juvenile Justice and Delinquency Prevention, Bureau of Justice Statistics, and the now defunct Law Enforcement Assistance Administration. Also indexed are published and unpublished research reports, books, dissertations, and theoretical and empirical studies. Nonprint materials are accessible through this online file. This format includes films, film strips, and audio cassettes.

The Basic Index in NCJRS includes the abstract, descriptor, note, and title. All meaningful individual words and character strings are searchable. Additional Indexes are numerous, and include author, contract/grant number, country of origin, corporate source, document type, descriptor code, journal name, language, publication year, report number, source, and sponsor.

The file is structured using the controlled vocabulary found in the National Criminal Justice Thesaurus. The thesaurus is hierarchical. Descriptors are very specific; the records are indexed to the narrowest applicable term within the hierarchy. There are descriptor codes (DC=), which allow for speed of input when the searcher is keyboarding in the terms.

It is possible to search by language in NCJRS. Approximately 20% of the records are non-English; altogether 19 languages are indexed. Take the foreign language coverage with a grain of salt, however; a close look indicates that there are only 2 records in Ukrainian and 1 record in Hungarian. Most of the non-English records are French, Spanish, or German.

It is also possible to restrict the search using the CP= code, for country of origin. This code applies to 86% of the records. Use of this code permits a higher degree of precision.

A typical NCJRS record with abstract is lengthy. Approximately five to seven descriptors are attached to each record.

Free-text searching in NCJRS is not particularly valuable. Each record has specific descriptors attached to it; using those narrowly applied descriptors enhances the precision. The abstracts are long; it is a rule of thumb that free-text searching brings up a higher number of false drops when the abstracts are lengthy as opposed to when they are brief.

NCJRS has been online since 1972. There are 64,200 records in the file. The DIALOG catalog states that there are monthly updates. However, the last loading was done in January 1982. The file is not current.

Connect cost per minute is $.69 (Uninet) or $.72 (Telenet and Tymnet) as of April 1984. There are online type charges.

Quite a few social science and multidisciplinary databases provide coverage of criminal justice topics. The list includes, but is not restricted to, ABI/INFORM, American Statistics Index, Child Abuse and Neglect, Congressional Information Service, Dissertation Abstracts, ERIC, Federal Index, Legal Resource Index, Monthly Catalog, National Newspaper Index, Newsearch, NTIS, PsycINFO, Public Affairs Information Service, Social Scisearch, and Sociological Abstracts.

In keeping with the theme of NLA this spring -- computers -- I have selected the topic of computer crime to illustrate searching capabilities of CJPI, NCJRS, and selected other databases.

The term "computer crime" is a descriptor in CJPI. In NCJRS the appropriate descriptors are "computer abuse" and "computer related crime." Note the postings for each file.

```
File171:Criminal Justice Periodical Index - 75-84/Mar
(Copr. UMI)
         Set Items Description
         --- ----- -----------
? ss computer()crime? or computer crime
           1   294 COMPUTER()CRIME?
           2   263 COMPUTER CRIME
           3   294  1 OR 2

File21:NCJRS - 1972-82/Jan
         Set Items Description
         --- ----- -----------
? ss computer abuse or computer related crime
           1    87 COMPUTER ABUSE
           2   156 COMPUTER RELATED CRIME
           3   180  1 or 2
```

There are more hits in CJPI than NCJRS. This may be in part accounted for by the difference in currency between the databases.

Postings in other databases vary. The term "computer()crime?" was searched and pulled up the following postings: 39 hits in Social Scisearch, 16 in Monthly Catalog, 12 in NTIS, 3 in ASI, 7 in CIS, and 155 in ABI/INFORM.

The topic of computer crime is well indexed in the two criminal justice databases, and much less so in the social science files, with the exception of ABI/INFORM.

Another topic that combines the field of criminal justice with computers is the next example.

```
File21:NCJRS - 1972-82/Jan
         Set Items Description
         --- ----- -----------
? ss computerized criminal histories
           1   102 COMPUTERIZED CRIMINAL HISTORIES
```

There is no similar descriptor in CJPI. Combining "criminal()histor?" and "computer?" brings up only 10 hits. Combining "computer?" and "criminal records" brings up 68 hits. The citations from NCJRS appear to be more precise than those from CJPI.

This paper has presented a brief review of the two databases that index criminal justice materials. The two databases complement each other. Documents indexed in NCJRS are international, whereas CJPI is limited to the United States, Great Britain, and Canada. A wider number and variety of publications are available through NCJRS than CJPI. A detailed, hierarchical thesaurus for NCJRS allows the searcher to select specific descriptors and retrieve tightly-indexed documents. The thesaurus minimizes the need to free-text search in that database. CJPI, on the other hand, is best searched using both the controlled vocabulary and free-text searching. A strength of CJPI is its currency; NCJRS is unfortunately slow in loading. CJPI is more expensive per minute, but it is cost effective to print citations online. NCJRS is less costly per minute, but due to the lengthy abstracts and online type charges, it is better to order prints offline.

"Cure all or snake oil?" My reply is "somewhere in between." Depending on the topic, either or both Criminal Justice Periodical Index and National Criminal Justice Reference Service can be searched to retrieve a number of relevant citations. Additional databases from the social sciences can be searched to provide supplementary citations. The field of criminal justice is well served by online databases.

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SOFTWARE AND HARD THOUGHT:
SEARCHING WITH MICROCOMPUTERS

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ABSTRACT

This paper compares the advantages and disadvantages of using microcomputers instead of dumb terminals for computer searches. While the dumb terminal may be less frustrating for the searcher to use, it cannot preload a search strategy, log the searcher onto the system automatically, generate the results in a variety of formats, or transmit the results to a different location. While the microcomputer, because of its layers of software and its susceptibility to transmission errors, may be more frustrating for the searcher to use, it saves the patron money (by offering preloading and automatic log-on), gives the patron options for receiving the results (paper and/or disk), and offers the capability to transmit search results to other locations. The micro is not a panacea for all searching problems but

is a tool whose expense and difficulties must be considered carefully.

BACKGROUND

The University Libraries of the University of Nebraska-Lincoln (UNL) began online database searching of Dialog and SDC in 1976, expanding in later years to include Dow Jones News Service and BRS. Equipment at the time consisted of Texas Instruments Model 745 dumb terminals operating at 300 baud (30 characters per second). In 1981 the libraries added two Model 787s operating at 1200 baud (120 characters per second). The four terminals were located in Love, the main Library; in C.Y. Thompson, the agriculture library; in the Chemistry Library; and in the Engineering library. Constant growth characterized the search service, reaching 1450 searches in 1981, climbing to 2700 searches by 1983, and expected to reach 3100 in 1984.

The problems associated with maintaining such a growth pattern coupled with changes in the price structure of online searching suggested the need to upgrade equipment. This would enable us to take advantage of the ability of microcomputers to reduce the cost of performing online searches and would reduce the strain of constantly training new searchers as librarians left the university to go elsewhere. Microcomputers offered additional opportunities to offer new and better service.

In the fall of 1982, Montag submitted a grant proposal to the Nebraska Foundation to purchase microcomputers for the University Libraries' Computer Search Service. The foundation responded in the spring of 1983 with $38,200 for hardware, software, and additional equipment. The original proposal called for four machines, but discounts and price reductions allowed the final purchase of five IBM PCs and one IBM XT that summer. Each machine included a four function board containing a real time clock, a 56K spooler, and sufficient memory to bring total RAM to 512K. The PCs have two disk drives with 360K, while the fixed disk on the XT has 10 megabytes of storage.

The primary software to be used for searching was Crosstalk XVI, a smart terminal and file transfer program by Microstuf, Inc. of Atlanta, Georgia. Additional software purchased was LOTUS 1-2-3 to take care of the Search Service's statistical reporting and WordPlus PC for word processing. Epson MX-100 printers, Hayes Smartmodem 1200s, floppy disks, and suitable furniture rounded out the equipment.

Initial learning and training took over a month and included not only the twelve librarians already experienced in online searching, but also three neophytes. One of the neophytes, Michaelyn Burnette, the new Government Documents librarian, was approached on November 1 by Linda Mach, special assistant to University President Ronald Roskens. Mach had been assigned to keep current with the activities of Congress as they affected higher education and universities. She and Burnette quickly exhausted the paper resources, discovering that none was sufficiently current to fit Roskens's needs.

Turning to electronic sources, they learned that Dialog had mounted Congressional Records Abstracts that very day and was planning weekly updates. A database search run on a trial basis showed that CRA provided the kind of information Mach sought and was sufficiently current to satisfy President Roskens.

Unlike many of the older databases, CRA would be unavailable as a SDI (selective dissemination of information) service from Dialog. With SDI, Dialog runs a search strategy against a database and sends a printout after every update. Mach's search would thus have to be run weekly and would give the Search Service the opportunity to test the usefulness of the new microcomputers.

Six months experience using the microcomputers has pointed out their advantages and disadvantages, their strengths, and their weaknesses. They allow the searcher to pre-load the search strategy, to take advantage of automatic log-on, to "upload" the strategy, "download" results, and, in the case of Linda Mach, speed the results to her office.

USING THE MICROS

Pre-loading the search

Dumb terminals do not allow the pre-loading of a search strategy; the searcher must dial up the host system, such as Dialog, and type in his commands at a rate varying from $.52 to over $2.00 per minute. Poor typists and neophytes inevitably waste time. Awareness of the cost adds to the pressure of searching and causes additional errors. Microcomputers with smart terminal software allow the typing of the strategy *before* connecting to the host computer. The pressures of time and money are reduced, and the searcher has an opportunity to proofread a strategy without incurring connect charges.

The Crosstalk program is such a smart terminal package. Initial setup requires a great amount of patience since its documentation, like that of most software companies, requires much re-reading and experimentation to understand what is going on. It runs on PC-DOS, the disk operating system standard for the IBM PC. Besides using DOS as its operating system, it takes advantage of a DOS utility, the EDLIN program, to create files of search strategies that will be sent to Dialog. Actually, any word editing program will allow one to create files for transmission, but EDLIN, though somewhat cumbersome, works well, and has the advantage of allowing one to create a strategy line by line and the advantage of being readily available.

The search for Linda Mach illustrates how it works. The prompt from DOS is A>, at which we type in the command EDLIN MACH [RETURN]. The system responds with the message "new file" and a prompt *. At the * we type i (the command for "insert") and [return]. The system responds with: 1:* .

We can now type the strategy using any of the commands to which Dialog will respond. The Mach strategy reads:

```
SELECT STEPS (HIGHER()EDUCATION OR EDUCATION
()HIGHER OR FOREIGN(f)EDUCATION OR INTERNATI
ONAL(f)EDUCATION OR TEACHER()EXCHANGE? OR FA
CULTY()EXCHANGE? OR UNIVERSIT?(c)RESEARCH?)
AND UD=9999
```

The typist then hits the [return] key and [control] C, followed by an E to end the editing session. The strategy is "written" to the disk, and is now ready to be sent to Dialog. If a mistake has been made, it can be easily corrected, all without incurring any online cost.

Automatic Log-on

Searchers using dumb terminals must learn various protocols to log-on to a system. Each telecommunications service has a different telephone number and uses different passwords and protocols for connecting to a vendor. Logging on is thus a complicated experience, especially for the neophyte or for the experienced searcher who has not recently used a particular system.

When all goes smoothly, logging on with the micros is much easier. The micro can be programmed to remember the telecommunications system phone number, to dial it automatically on command, and to respond appropriately to each of the system prompts, including sending the Dialog password. One could even program it to send the search strategy, download the results, and logoff the system without further input from the searcher. Variables in searching such as line noise make this less useful in actual practice.

Crosstalk provides the commands used to program automatic log-on, and one uses the EDLIN program on the DOS disk to set it up. The program for the Mach search uses Telenet and reads as follows:

```
WAIT DELAY 5
REPLY |;||
WAIT CHAR "@"
REPLY C 213 170|
WAIT STRING "BBBBBBB"
REPLY ABC12345|
WAIT STRING "LOGON"
SBREAK
WAIT CHAR "?'
REPLY B135|
```

The vertical double bars (|) represent a [return]. This procedure logs one on to Dialog, sends a break signal to the host and then begins the search in File 135, Congressional Records Abstracts.

As with all things, automatic log-on is not without problems. It generally saves time and money for the patron, but line noise will occasionally disrupt the procedure. The searcher must, therefore, be able to recognize when this happens and make corrections or start again. Another problem has been an inexplicable error in which the micro thinks it has linked with the telecommunications system when it has not. The searcher must recognize this and correct by "rebooting" the micro and starting over.

Getting Results

The dumb terminal's options for receiving search results online are limited to paper; additional copies can be obtained by photocopying, by using two- or three-part carbon interleaved paper in a terminal with an impact printer, or by remaining online and rerunning the types. In contrast the micro offers several options: printing on paper, printing on paper and saving to disk, or saving to disk alone.

The dumb terminal's options for receiving the search results are limited to paper; additional copies can be obtained by photocopying the original or by going on line again. In contrast, the micro offers a variety of options for getting the types: paper, paper and disc, of disc alone. Even if the patron desires only one or two copies of the search on paper, the micro offers a savings because it can capture the results in memory as fast as the database sends them, allow the searcher to log off, and then tell the printer the rest of the results. Searchers using the dumb terminals must stay on line to print all the sets; the micro's memory captures the sets as they are transmitted (which if faster than most printers can type them), so the searcher can log off and save the patron some money.

If the search has been saved to disc, then the patron can, at no further cost, ask the searcher to run off more paper copies. The Mach search is being produced on paper and disc; several search patrons are requesting that their results be produced only on discs. One advantage of storing on disc is that the search takes up little space--there is no paper which must be filed in a cabinet. Also, the results of the search can be manipulated by the user.

Retransmission

Another advantage of saving to disk is that the results can be retransmitted to another micro. The Crosstalk software has a call mode (used to call a vendor such as Dialog) for searching and an answer mode (used to receive a message from another micro). Obviously the dumb terminal, since it has no storage capability, cannot be used to send the search to another location. Micro software offers this feature.

Mach's office is in Regents Hall on the UNL East Campus three miles from Love Library. Since Mach did not have the time to drive to the City Campus each week and did not want to depend on campus mail for a speedy delivery, Montag devised a way to download her search from a micro in Love to a micro in the C. Y. Thompson Library on East Campus. All Mach has to do to get her search is walk across a street. Eventually Mach will have a micro in her office, and the search can be downloaded from Love directly to her computer, eliminating the need for her to leave Regents Hall to pick up her search results.

Drawbacks in Choosing the Microcomputer for Searching

In these days of tight library budgets, the most obvious difficulty in switching from dumb terminals to micros is the capital outlay for equipment and the necessary attendant software. Of course this equipment, unlike the dumb terminals, can be used for other purposes; staff members at UNL compile statistics on the LOTUS spreadsheets and use word processing software to write papers and prepare minutes of meetings. In the next few months staff members in Acquisitions will start using one of the micros for ordering, a step which will save the library thousands of dollars a year on previously rented equipment. The University Libraries were fortunate that the Nebraska Foundation funded Montag's grant proposal; otherwise the library might not have been able to purchase the micros. (Meanwhile, the dumb terminals are not wasting away in a storage room but are being used in branch libraries which previously did not have the equipment to offer searches.)

Another expense involves training (and retraining) personnel. First someone must learn how to set up the micros and use them for searching. This process takes much time and expertise; library literature is not very helpful in such matters as programming an automatic log on. Once this person has the micros ready for searching, he/she must then train the other searchers. While the micros offer potentially cheaper searches and expanded opportunities, they place more demands on the searchers because of the layers of software and the many more opportunities for things to go wrong. The previously mentioned booting errors are caused when the parameters fail to load from memory. Automatic log on, sending the search, and retransmisson are all affected by booting problems. Line noise in the log-on and errors in file transmission, also probably caused by line noise, create still more difficulties. The searcher must recognize these problems and know how to respond and correct them manually. One recurrent problem we have had at UNL is paper jamming in the printer, causing the lines of the search to print on top of each other. Fortunately, the micros offer the potential to rectify the problem unless there has been a failure to store the results on disk. This difficulty seems to result from a lack of contiguous space on the disk.

Our six months of experience in using the IBM Personal Computers in computer searching show that the micros are neither snake-oil nor cure-all. Searching with the PCs has dropped the average cost of a search, offers increased service for the patron and a variety of uses for the library, but it also is expensive and places new demands on searchers.

The future will also bring more problems and opportunities for searching with micros. The question of downloading and copyright must be confronted: do we have the legal right to keep the output on disks and create new databases for the patron? Equipment obsolescence must also be faced--smart terminal software will change and baud rates will increase. Money must be found to buy the new software and equipment to keep up with changes in technology. Changing is worthwhile; patrons appreciate the option of receiving their results on disk to build their own databases and also the capacity for electronic mail which allows retransmission to their own micros. Perhaps the future may bring more end user searching to UNL; if this occurs, the librarians may become advisors to patrons running their own searches. University Libraries have taken their first steps into searching with the microcomputer. The future promises to be both challenging and rewarding.

CONVERTING TO ALIS II - CURE-ALL OR SNAKE OIL?

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ABSTRACT

The University of Nebraska Council of Librarians decided in the spring of 1983 that our then current ALIS I circulation system was no longer sufficient to cover our needs. We had reached our maximum storage capacity in early 1983, and since several previous attempts to achieve more space had not proven profitable, converting to ALIS II seemed to be the only economically feasible solution. ALIS II, though similiar to ALIS I in function, provides a much more efficient data storage mechanism and also allows us to attach up to four more disk drives, vastly increasing our data storage capability. This paper discusses the outcome of this decision while enumerating some of the problems we've encountered along the way and also some of the "cures". It also offers some insight into the magical world of vendor relations.

BRIEF HISTORY

LIRS, the University of Nebraska's Library Information and Retrieval System, grew out of a desire to consolidate information about books and periodical holdings in all the libraries on the three campuses of the University and to make that information available to faculty, students, and citizens through online computer access. It began with an analysis of the manual circulation system operations in 1975. From this investigation a formal proposal and specifications were prepared for the three directors' approval in 1976. In 1978 funding was identified for the multi-campus system, the bids were let, and the contract awarded.

Specifications called for the system to function as a circulation and finding system, replacing manual operations. As written, the specifications required only brief bibliographic records of 150 characters and location information. However, the concept was later altered when DataPhase, the successful bidder for the new system, indicated that their system could support full MARC records and corresponding dictionaries.

A May, 1978 report to the Regents had high hopes for the system as this quote indicates:

> The result will be that the faculty and students using any of the libraries on the three campuses in Lincoln and Omaha will be able to determine immediately if any one of the libraries owns the item, and if it is available to be checked out. Access will also be provided to the University Agricultural Experiment Stations and to other outstate locations by the use of computer terminals. The University of Nebraska library resources will thus become a statewide library. Access can be provided to other state educational institutions, Nebraska private colleges, and public libraries.

This statement held out great promise, but as in many cases, not a realistic one. As of today the LIRS database contains 300,000+ bibliographic records, representing only a portion of the holdings of the three campuses. Holdings, location, and circulation information are available only to the library staff on the three campuses and presently, there are no plans to expand the system beyond the University system.

The University was one of DataPhase's earliest and, at that time, largest customers. Both being novices at the library automated system business, we jointly began to discover the limitations of DataPhase's Automated Library Information System (ALIS). The lack of a batch processing function, the ability to add new bibliographic records via OCLC tape load, was soon apparent. This function was not available for many months after we became operational in 1979. Consequently, new records could not be added to the database from our OCLC tapes, though manual records could be added if necessary. When we were able to load, we soon discovered that the space required to store a record entering from new tapes was much greater than it had been for those loaded initially.

This sudden increased use of disk space caused real concern. Since the ALIS software could support only four disk drives, our storage space had a definite limit. In the next two years, we experienced two strippings of our full MARC records, reducing them to the extent that they now approached the originally specified 150 character limit. This fact caused the LIRS Catalogers Group to question the ability of the system to ever function as an online catalog. The first stripping required us to offload the database and send it to Kansas City, a time consuming procedure causing several weeks of downtime. The second was done without an offload, but limited the use of the system, especially by technical services staff. This necessitated redeployment of staff hired to work on database maintenance and linking, added burdens to circulation, and did nothing for the morale of the staff. Even with the stripping, which left the bibliographic records with only author, title, edition, imprint, and a few other auxiliary fields, we gained only enough space to load a small number of the three-campus's OCLC tapes. Along with strippings, we twice compressed the database in an attempt to gain more space. Success here, too, was limited with one of the compressions taking two months longer than had been projected, resulting in another period when the technical services staff did not have use of the system.

Hardware, software, and environmental problems in the computer room occurred much oftener than anyone could have predicted. At various times, our disk packs had to be cleaned and checked for deterioration; disk packs needed their heads realigned; the computer room was either too hot or the humidity too low; and even floods from overflowing humidifiers occurred. Software updates from DataPhase were not forthcoming as promised. Serial volumes which had been linked to their respective bibliographic record disappeared and seemed to be floating in limbo. Deleting and relinking resulted in more losses. Ghost records, both bibliographic and patron, plagued the system. The situation was one of constant frustration to staff and patrons.

Early in 1983, the system approached its storage limit; all four disks would soon be full. Tape loading was suspended;

circulation space became critical. DataPhase's new ALIS II software which promised expansion to eight disk drives, more efficient storage, and other features was available only to new accounts. The software which was needed to transfer us from ALIS I to ALIS II had been promised for more than a year and was still not ready. In anticipation of ALIS II, the Libraries had purchased the fifth disk drive which at that time had been left sitting idle for more than a year. Plans to upgrade the hardware, including a more powerful CPU and denser disk drives, were considered, but were found not to be an option as ALIS I software was not compatible with the larger equipment. Data shifts were also considered as a temporary measure. In response to our crisis, in May, 1983, DataPhase indicated that the transfer software was ready. After negotiations between the directors and DataPhase, the University of Nebraska system was designated as the alpha site for the upgrade from ALIS I to ALIS II. This meant that LIRS would be DataPhase's guinea pig. Our system was not the one originally chosen as the alpha site, but the library DataPhase preferred was in no hurry to accept incomplete software especially since they were not experiencing space problems.

ACCOMPLISHING THE TASK

Once the initial decision in May, 1983 was made to convert to ALIS II, a plan as to how this could be accomplished was formulated. The initial plan involved 16 distinct phases (See Table I). The schedule of phases was set up in such a way as to allow us

Table 1

PROPOSED SCHEDULE

	Event	Estimated Time to Complete
1.	Stop all Bib Functions	-
2.	Make Copy of Current Data	6 hours
3.	Offload Bib Data and Linked Item Records	2 weeks
4.	Stop all Patron Maintenance	-
5.	Make Copy of Current Data	6 hours
6.	Offload Patron Data	1 week
7.	Stop all Circulation Functions	-
8.	Make Copy of Current Data	6 hours
9.	Print off Circulation Data and Delete Circ File	Unknown
10.	Offload Temp Converted Item-Records	1 week
11.	Format and Label 16 Disk Packs for ALIS II	4-5 days
12.	Install Fifth Disk Drive	1/2 days
13.	Load ALIS II Operating System	1 day
14.	Reload Patron File	7-10 days
15.	Commence On-the-Fly Circulation on ALIS II	-
16.	Reload Bib Data and Item Level Records	4-5 months

the most use of the system during the conversion process. Since we were the first ever to undertake the task, the vendor was only able to give approximate time predictions, leaving us very unsure as to how long we might be down.

It was even unclear at times what each phase might involve. For example, it was decided at the start that we would offload our circulation data last. This would allow us to continue using the computer for circulation purposes while the bibliographic data was being offloaded. Prior to the beginning of the offload, DataPhase informed us that they could indeed offload all of our circulation data, but we would not be able to reload it until after the bibliographic data was completely reloaded. This reload was predicted to take 4 to 5 months, during which time we would have no access to our circulation data. This was clearly unacceptable since we desperately needed the system to be up and running for circulation by the beginning of the fall semester. This resulted in a rather crucial change of plans. Instead of offloading our circulation data onto magnetic tape, we would instead have it printed off. Since we knew that this would result in an enormous amount of paper, we chose to do only manual charges during the offload, and try desperately to clear as many records as possible before the printing took place. Even with these efforts, we still had well over 10,000 circulation entries to deal with when the printing was completed.

The new operating system and software were loaded two weeks prior to the beginning of the fall semester. Staff training took place the next week, and by the very first day of classes, we were checking out books on ALIS II. We were beginning on ALIS II with only a few patron records and no bibliographic data or circulation data online, but we were circulating much to everyone's relief. At this point, if anyone wanted to know if an item was checked out, one had to possibly search in three separate files before coming across the record. The charge record could already be stored online or could be in one of the two manual files--items checked out during the summer or the pre-summer items listed on the printout. We should probably mention at this point that the only order DataPhase could print this information in was date due order. Since this order was useless for circulation purposes, we had to come up with a way to put the data in a readily accessible order. As we felt that call number order would be the most helpful, we spent several weeks cutting each record into strips, filing them onto flexoline sheets and photocopying them. We later also reshuffled them into patron order so that we had two listings--one by call number and one by patron.

The retraining of staff was not a major problem. Most of the staff had had previous ALIS I training and the differences between the two systems were not major. We held separate training sessions for circulation staff and technical services staff--experiencing very few problems in bringing the system up for use.

The reload of the data stored on magnetic tape actually went much smoother than we had anticipated. Except for the loss of one crucial bibliographical tape (containing some 21,000 records), all of our data was reloaded by January 29, 1984, way ahead of the original March 1st prediction. The reload of the manual circulation data has been much slower. After coming up on ALIS II on August 29, we faced what seemed to be the insurmountable task of manually re-entering something over 8,000 charge records from items checked out during the summer, and some 10,000 entries of pre-summer items left from ALIS I. We completed the summer charges in late October and are, at the present time, nearing the end of the pre-summer ALIS I charges. This project has been a study in manpower since each record has been verified and shelf checked before entering it on the computer. The extremely overdue items (some ranging back to 1979) are currently having manual bills produced and sent to the delinquent patrons in hopes of getting the items returned.

Throughout the entire process, DataPhase was most attentive to our needs, questions, and problems. Since we were the "guinea pigs", so to speak, it was in their best interest to see that things went as smoothly as possible. Thus, the personnel at DataPhase were in almost daily contact with us and responded quickly to the various emergencies that arose during the process. Through this experience, they have gained valuable insight on how to (and how not to) handle future conversions. Good vendor relations were extremely important since we were breaking new ground, and though they did not always give us the answer we wanted to hear, they were always on the other end of the line.

ADVANTAGES AND DISADVANTAGES

Converting to ALIS II has been both a Godsend and a major inconvenience. Its biggest advantage was the remarkable amount of space that was gained (approx. 2 1/2 drives worth including the fifth disk drive) which is allowing us to load a two year backlog of bibliographic data. The disadvantages, though notable, can be lived with. We have spent most of our time adjusting to the new system--changing procedures and policies to work with the limitations and even the flexibilities of the new system.

Major Advantages (See Table II)

Gaining disk space was a major concern and the main reason for converting to ALIS II. We are currently making great inroads into our two year backlog of OCLC tapes and have hopes of being current by the end of the summer. The ability to search temporary charge records--items that are checked out that have no connecting bibliographic record--by call number has been a big boom to the circulation desk staff. Prior to this, we had to maintain a separate manual file of these records just so we could obtain circulation information. This was an awkward and somewhat unsuccessful routine. By using the call number search, we have been much more successful at answering the age old question: "Is this book checked out?"

Renewing items for a patron on ALIS I was usually a long and drawn out process since each item had to be done separately. DataPhase has simplified this process on ALIS II with a "renew

Table II

MAJOR ADVANTAGES

1. Gain of 1,840,000 Blocks of Storage Space
2. Ability to Search Temporary Item Records by Call Number
3. Ability to "Renew All"
4. Prioritizing of Jobs in Memory
5. More Efficient Storage of Data
6. Greater Expandibility for Future Software on ALIS II

all" function which allows us to renew every item on a patron's record with just a few key strokes. You can also now renew overdue items without changing functions.

Our new operating system allows us now to assign levels of priority to each job. The higher the priority, the more time the job is allotted in memory. This makes for a much quicker response time. Most of the circulation functions have a high priority and response time has been good for the most part. On the other hand, print jobs, tape loading, and technical services functions tend to have lower priorities, and thus, response time tends to be slower during peak circulation use. These jobs are now being relegated to non-peak time.

ALIS II has a more efficient storage mechanism, and so, it seems we are able to store the same amount of information in less space. This should delay somewhat the addition of more disk drives, and in the long run, allow us to store more data than we had originally anticipated.

Probably the biggest advantage in going with ALIS II at this time is that its future certainly looks bright. On the whole, it is a better thought out system and when completed will outshine ALIS I. In the meantime, we are learning to be patient.

Major Disadvantages (see Table III)

The decision not to transfer circulation data has had the most negative impact on the circulation staff. We did make an attempt to print off as much of the information as was possible, but a great deal of it was still lost. All of the patron blocks

TABLE III

MAJOR DISADVANTAGES

1. Lack of Ability to Transfer Circulation Data
2. Incompleteness of the Software
3. Software Bugs
4. Loss of One Bibliographic Tape
5. Disappearance of Crucial Data from Records
6. Lack of Serials Control

for such infractions as overdue items or fines were completely wiped out. We discovered, after the fact, that our fine printout was incomplete. We had only totals listed for many of the records, and since the Registrar's Office insists that we be able to know exactly what the fine is for, we were forced to release hundreds of registration holds. This resulted in a loss of revenue for the University of several thousand dollars which raised a few eyebrows in the Bursar's Office.

We have also found ALIS II lacking many of the features that we had become fond of on ALIS I. Most notable of these is the lack of a multi-library capability. This lack has caused us to duplicate some files and has resulted in some searching problems in the bibliographic file. We are also experiencing some problems with the ALIS II software. The most crucial of these has been the problems in producing overdue notices. ALIS II started off with a wonderful feature of being able to design and format your own notices. Unfortunately, not long after we started printing them, we came to realize that we were not getting all of the notices that we should have. The function also seemed to completely ignore set parameters and we soon had 2nd overdue notices going out before the first notices were even printed. By the middle of February, we were unable to produce any type of notice. Fortunately, DataPhase has finally seen the light and a major revamping of the notice software has taken place. As of the middle of April, we are once again sending out notices.

The loss of the ALIS I bibliographic tape has been a big mystery to us all. The information was offloaded onto one magnetic tape which somehow became a garbled mess before we were able to reload it. Since the loss of some 21,000 bibliographic records does not appeal to us, we have asked DataPhase to investigate other ways of retrieving the information. We still have the ALIS I data stored on two sets of disk packs. The plan that has been suggested is that we send one set of these packs to DataPhase in hopes that they can locate and retrieve the missing data.

Other mysteries include the disappearance of such important data as titles from thousands of temporary item records and the 910 fields from the MARC records. The 910 field contains local data which helps us distinguish between similiar records. The missing 910 fields have been a source of some confusion for the technical services staff. The missing titles have caused any number of problems, especially since these items are charged out on patron records. Patrons seem to have a hard time relating to call numbers and OCR numbers. So, we are spending an enormous amount of staff time re-entering the titles on the system. We have yet to receive an explanation from DataPhase as to why either of these problems occurred.

Another major problem which is certainly not new to us, is the lack of proper serials control. This was a problem on ALIS I and has become even a bigger problem on ALIS II. Volumes are stored according to OCR number rather than in volume number order, leaving the item level screens in disarray. We also "lost" several thousand converted serials during the reload which will now need to be reconverted resulting in an inordinate amount of staff time. Fortunately, DataPhase has realized how important serials are to us academics and are now actively working on serials maintenance.

Though the disadvantages seem to outnumber the advantages at this time, we feel that the decision to convert to ALIS II was a good decision. We were in a no win situation, and now looking back this was really the only thing we could do. We are now growing with the system and not stagnating. As ALIS II is developed, we should see many of our current problems disappear and the advantages will become more apparent. We do not regret our decision though it is sometimes hard to live with.

VALUABLE LESSONS FOR PROSPECTIVE BUYERS

As we all know, hindsight is better than foresight. At this time, we would like to offer some insights to those of you who may be considering some form of library automation using a turnkey system. These thoughts are based on our own decisions to automate and to upgrade our software.

Planning is the most critical element. First is the long-range planning which includes answering the following questions: Should we automate? If so, which functions should be automated? When should these functions be automated? How does this automation fit into the overall plans and goals of our library? Are we willing to expend the funds and energy necessary to automate? Once you have made the decision to automate, the next step is the short-term planning which includes the choice of the system to be purchased, the effects it will have on the work flow, staffing patterns, and service, and the possible funding options. To be effective, the planning processes must include all levels of staff. And those not immediately involved should be asked for their input and be kept informed.

Long-range planning for our automated system was not as effective as it could or should have been. The decision to automate was made by the upper level administrators and the planning was done initially by UNL's Assistant Dean for Planning and Research. When it was determined that funding could be obtained by a combined effort of the three NU campuses, the other directors became involved. Very little effort was made at UNL to involve lower-level staff, especially those who were to use the system on a day-to-day basis. This was a mistake which we continue to feel. LIRS seems to be a mystery to many of our staff who do not have direct contact with the system even though efforts have been made to increase their awareness. They are not sure why we have the system we do and feel that it was forced on the library. It is hard for them to justify the required workflow changes and necessary additions to their work in order to accomodate a system which has experienced many problems and in which they see no great benefit. Questions are asked as to why such sums of money are spent on a system that will not do all the things they were originally told it would do. This has resulted in many negative feelings concerning the system.

Our software upgrade decision has involved staff who work more closely with the system. The three campuses formed a coordinating committee in January, 1983. This group has been active in advising the University of Nebraska Council of Librarians in the major changes that have taken place since that time. However, this committee has had precious little time in which to formulate cognitive plans, and thus many of the decisions were made without complete information. The lack of a project director for several months in 1982 and 1983 resulted in a lack of direction and effective communication with DataPhase concerning our space problems. These problems had plagued us for quite some time, but only band-aids had been applied when major surgery was needed.

However, as we look back, we believe our upgrade went as smoothly as possible. We were not able to get the level of staff involvement that might have been desirable, but we did try to keep the staff informed as to the why's and how's.

Major Lessons (See Table IV)

Lesson one is to prepare for automation by careful planning involving staff at all levels, first in the decision to automate, and then in the choice of the systems and its implementation. Staff morale will be higher as will the acceptance of the system by the staff.

Lesson two is to establish good relationships and communications with your vendor. Before you purchase a system, ask lots of questions about the system and what it will do for you. Check out several systems before making your choice. An excellent list of questions can be found in an article by Joseph Matthews in

Table IV

VALUABLE LESSONS FOR PROSPECTIVE BUYERS

1. Formulate Long Range Plans which Involve all Levels of Staff
2. Establish Good Communication Links with the Vendor
3. Beware of Vendor Promises
4. Consider Carefully how an Automated System will Affect Staffing and Workflows
5. Remember that the "Perfect" system does not exist.

Information Technology and Libraries for December, 1983. Verify your answers with the current users of the system being considered.

We were very early in choosing a circulation system. Basically only two systems were available. We believe we chose the best of what was then available. However, DataPhase was new and did not fully understand the limits of their own system. This is a problem of being one of the first customers of any company. Sometimes we did not ask the right questions, and consequently some of our assumptions were incorrect. At times, we felt that we were either misled or that the system was not developed far enough for DataPhase to correctly predict its own capabilities.

Keep asking questions after you buy the system. All the systems available today are still in various developmental stages. Make your needs known. If other customers have the same needs you may have an effect on the system's design. For example, there are problems with our call number dictionary. Our vendor representative has told us that he has other accounts with the same complaint. Since several voices speak louder than one, this problem should be resolved sooner than others which receive only one complaint.

Good communication with the vendor is extremely important. Each library needs to designate a contact person to work with the vendor. In a library our size, we now have two coordinators--one for circulation and computer operations and one for technical services operations. This contact person should be someone who works closely with the system and can relay problems and concerns clearly to the vendor. Likewise, the vendor should have a specific contact person who understands your system. In the last year our communication with DataPhase has improved greatly because of our new coordinator positions and a new understanding vendor representative. Previously our contact person was an assistant dean or the Dean and our vendor representative had become one of the company's vice-presidents. The result was little productive communication.

Lesson three is to beware of vendor promises. As previously stated, virtually all of the systems on the market are incomplete. Our experience, and that of others, have shown that most timetables for new software releases are often hopeful and not very realistic. What the vendor believes to be a good program when tested in-house may fail dismally at the test site and drastic rewrites may be necessary causing lengthy delays. Their intentions are good, but vendors are in a very competitive market and are forced to show a profit. Thus, they have a habit of selling incomplete products. Being unaware may result in disappointment and frustration.

Lesson four is to consider carefully how an automated system will affect your library's staffing and workflow. Our experience has been that it does not reduce the number of staff needed, only moves staff to other jobs which require a higher skill level. Likewise, workflow changes as the system is integrated. In fact, several changes may occur before a satisfactory solution is found.

Lesson five is to remember that the "perfect" system does not exist. You must look for a system which best fits your needs and one which has limitations you are willing to accept.

These are but a few reflections based on our experiences with a turnkey circulation system. Even though turnkey systems have problems so do the other avenues one might consider when automating. There are so many systems on the market today to choose from, a library should be able to find one that will satisfy most of their needs.

TROUBLE-SHOOTING OR SHOOTING YOUR TROUBLE

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ABSTRACT

An occasionally serious look at the maintenance problems associated with computers and computer paraphernalia in a library environment. As a system grows more complex, the chances for physical problems increase and detecting the source of a problem becomes more difficult for the librarian who has only a smattering of training. This paper will present some hard-learned tips for coping with electronic anarchy and is based on the misadventures of the University of Nebraska at Omaha Circulation Services Department.

I love to hear the talk at conventions or read in the journals about such things as database management, tree structures, access points, RAM and dictionary rotations. I find such talk inspirational so I seek it out because we just do not talk about computers that way at the University of Nebraska at Omaha Circulation Department. Our conversations tend to sound like, "Well it looks nice but where do you suppose we plug it in," and "John come here quick, it's acting even more bizarre than yesterday!"

It is this kind of conversation that forms the heart of this paper. I hope to give you a few hints about coping with hardware problems as your systems grow more complex. These hints are not words of wisdom from a well-trained expert, but are more along the lines of "Any idiot can survive the computer age and we are just the idiots to prove it." This is also the kind of paper that will have people muttering after they finish reading, "Well I could have told you all that. It's just common sense." And they will be right. I just hope they are around the next time I need some applied common sense.

BACKGROUND

As I said, I am not an expert on computer hardware and I have the bruises to prove it. My experience with computers prior to coming to the University was as a student learning to program on a single terminal connected to a very large Univac which, rumor had it, you could shoot with a shotgun and it would repair itself. With that background, my first week at UNO was a revelation. There were all these pieces of equipment lying around and I had no idea what they were. At one point during that week, one of the staff came to me and said that we were having trouble with a CLA. I thought, "Maybe he means CBI or maybe he's talking about a fraternity or maybe this is something else I've forgotten from Library school."

When he told me he meant Current Loop Adaptors I felt much better. I now had a name for all those little boxes in the closets and by the terminals. I still had no earthly idea what they did, but at least I knew what they were called.

Before I get to the hints and rules I hope to share, I think I should describe what kind of equipment the UNO Circulation Department wrestles with so you will have a context for some of the miseries I will relate to you.

The UNO circulation system is part of the three campus octopus of the University of Nebraska system. But, as the project manager of the system will attest, UNO is unlike the other campuses in the range and intensity of our hardware problems.

UNO has 15 terminals which come in four different models; two of the terminals have screen printers attached; the screen printers of course are not the same model and require different cabling; 12 of the terminals have separate keyboards which require cables; and four of the terminals have light wands attached as well as the big black boxes that control them. Some of our devices are wired directly into the telecommunication devices, some indirectly through the CLA's and some even more indirectly through internal telephone lines. The wiring goes through at least four junction boxes and has two transmit and two receive wires and these wires obviously should be carrying the same information at every junction. Unfortunately, when the system was set up some of the wiring patterns got reversed or turned inside out and we have suffered from it. We also have two Micom Dataconcentrators that take our 16 lines and make them two lines for our AT&T equipment, a Bell Dataphone, which sends our data along leased lines to the University of Nebraska at Lincoln's Dataphone and Micoms. Obviously there is room for a lot of problems and we have managed to find a lot of them. Armed with all the learning we have gained from our mistakes I have devised a list of rules or suggestions which may help keep you ahead of expanding hardware problems.

RULES

Rule #1.

I ignore this rule as much as possible and will probably go on ignoring it even though I know I am making a mistake. Rule #1 is to get, keep and worst of all read the manual that comes with your equipment. I am aware that criminals are protected from cruel and unusual punishment but computer users are not. I am also aware that computer manuals, through some miracle of perversity, are indecipherable for both technicians and those of us who speak English. Nevertheless you have to read the manual and have it handy because it can save you a lot of trouble. You will be amazed at what you can figure out with that little manual if you give it a try. I know because I have seen other people do it. I should warn you, however, that if you pull the manual out of the box and two or three loose pages of corrections fall out that are not just typographical corrections, you should be prepared for the worst. The manufacturers are admitting that what they planned to build and what they produced are two different things. And further, if they felt they had found all the bugs, they would have issued a new manual.

Rule #2.

The second rule is probably the best suggestion I have for you and it is also one that may apply uniquely to this group of librarians. The suggestion is to take advantage of your setting and hire computer science majors as shelvers, physics majors as desk assistants and an engineering student to just sit around until you need him. We have a student position that has the title Kevin's Job. Kevin was an engineering student we hired in shelving who eventually ended up being our in-house service man. Kevin would bring in his tools and meters and do little repairs or at least narrow down our problem to a point where we could report the exact problem so that the highly priced service man would come with the right parts. Unfortunately, the cads at University Television hired Kevin away from us. Fortunately Al, our new Kevin, has proved just as valuable.

You do need to be careful when hiring whizzes, however, since you do not want someone who thinks they are being given a toy to play with or who desires a dialogue with NORAD. We find that engineering students are the best risks. In any case, at $3.35 an hour you have a good thing going.

Rule #3.

My third bit of advice, which was gained through long and aggravating experience, is to tell you to record everything in detail. Remember the four wire situation I described earlier? Well, I wish we had recorded that arrangement before we started to work on it since the permutations of four connections is depressing to consider when each attempt at correction involves the use of a very small screwdriver. For a start, you need pin placements, dip switches, wiring guides, port numbers and which communication-end device controls which terminal. It is astounding how many things you can write down when you get going. For example we have a screen printer that has 10 different pads of switches and those switches are arranged differently if we attach the printer to a different terminal,

Rule #4.

Avoid telecommunications like the plague. This may seem like a silly rule and, indeed, I do have a difficult time defending such a statement in general terms. However, when I talk specifically about UNO, it is clearly a reasonable piece of advice. We have had more strange problems with our telecommunications devices than with all the rest of our equipment combined. And things seem to get worse instead of better. For example, we sometimes have data loss problems that are hard to diagnose but which we suspect are caused by problems in the leased lines. It used to be a simple matter for us to check our suspicions because Kevin's wife Cathy worked for AT&T Long Lines. We would just ring up ol' Cathy and she would tell us where the problem originated. Every year since I came to UNO we have closed for two weeks over Christmas and then had trouble kicking the equipment back to life when we returned. This year was no exception except that when we called Cathy's office a man there told us he wasn't sure but he didn't think they were allowed to talk to us anymore. Finally, after three transfers I got someone in Minnesota who said he would cut a work-order for us and, sure enough, five minutes later we got a call from Cathy. That situation was more annoying than troublesome. Our dealings with the Micom company on the other hand have been extremely frustrating. If you remember from earlier in the paper, Micom makes the Dataconcentrator that feeds our data into the AT&T equipment. Last fall we lost four out of the eight ports on one of the Micoms and so we arranged to have it replaced. When the new one arrived we plugged it in and since the four ports were still not working we naturally suspected that something else must have been the problem. We tried everything but all our testing indicated it had to be the Micom so we replaced it again and still the four ports did not work. We were on the phone for a week with anyone we could think of and I sometimes felt like it was Bob Newhart on the other end of the phone repeating everything I said and getting big laughs from the people surrounding him. Well, the third time was a charm and our next replacement worked. We had received three pieces of faulty equipment with identical problems. A week later we got a phone call from Micom asking if we would mind being included in their annual report.

Rule #5.

This rule applies to a lot more than just computers -- "If it ain't broke don't fix it." We have always regretted trying to improve on an operating enterprise.

Rule #6.

Check the simple stuff first. If something does not work make sure it is plugged in and that all the connections are secure before you call for help. It can save you a lot of embarrassment.

Rule #7.

Do not embarrass easily. Go ahead and ask the silly question and ask it again if you do not get an answer. Do not be surprised if your question is actually a very good question but that no one wants to admit to ignorance. Remember, at $90 an hour you are entitled to ask questions and get answers.

Rule #8.

This rule is really only a different aspect of Rule 7. You should be tenacious. I am constantly surprised at how many phone calls and consultations it takes to do something as simple as get the correct cable for a printer. You really have to be persistent sometimes if you want a company to sell you something.

Rule #9.

Sneak extra parts into your budget. You can trace problems much easier if you can replace parts all along the line. In the past, we have not carried spare parts and so we considered the Reference terminal our spare parts inventory. I know they appreciated the dead terminal on their desk. We would have a spare of everything now if we could convince Micom to sell us a new Dataconcentrator.

Rule #10.

Establish a hands-off rule for your equipment. Untrained people can cause a lot of aggravation when they put their hands on anything but the keyboard.

Rule #11.

Keep your equipment neat and clean. Get a vacuum and dust covers and avoid what one person calls all that "spaghetti on the floor".

Rule #12.

My last rule has done more for my peace of mind than any of the preceding suggestions. I have delegated my computer worries to a very able and tenacious assistant who does the worrying and coping for all of us. Obviously if you take this last suggestion to heart you can just about forget anything else in this paper.

CONCLUSION

Finally, I thought I would sum up my thoughts on this mess with a story that has nothing to do with computers. In August 1979 my wife and I were expecting our first child and we were busy with plans and were reading every book we could get our hands on when, three days before the blessed event, the doctor told us to plan for two. Well, after the shock wore off, or at least the first shock wave, I went scurrying to Dr. Spock, flipped through to the index and looked up twins. I turned to the page indicated and read -- "Get help." So when your problems are overwhelming -- "Get Help." However, if you are like me with the twins' grandparents, you may be tempted to strangle your help and will therefore have to be prepared to handle a lot of problems on your own.

THE ROLE OF STATISTICS IN MANAGING LIBRARY INSTRUCTION PROGRAMS

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ABSTRACT

At the University of Nebraska-Lincoln, public service librarians keep statistical records of their library instruction activities. These records serve a number of management functions: they indicate which staff are most heavily involved in instruction, the peak months of instructional activity, the frequency with which specific instructional modes are utilized, and the frequency of presentations to academic departments. Statistical reports are generated annually from the records, enabling the library to assess more effectively its instructional program.

SYSTEMS DYNAMICS AND LIBRARIES: PROOF OF CONCEPT

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ABSTRACT

Existing data relating to library reference services were analyzed to provide baseline statistics for simulation of existing policies. This paper discusses techniques used to build the simulation and the subsequent policy changes tested by the simulation. The purpose of the paper is threefold: (1) to illustrate the use of systems dynamics techniques within libraries, (2) to illustrate the use of statistical techniques to form the simulation foundation, and (3) to illustrate the use of both computers and computer-based techniques within libraries. Results of this study were encouraging; several weaknesses within the existing data collection format were uncovered and potential resource savings were found.

INTRODUCTION

Because of similarities between libraries and other production organizations, it seemed reasonable that techniques of use to production organizations might be applicable to library management. Of particular use might be those techniques dealing with policy formulation and administration in a strategic (i.e., long-term) setting. It was decided to attempt this transfer of technique focusing on "real-world" data provided by the library of a small midwestern college using a technique known as system dynamics. The purpose of this study was simply to see if such technique application was possible and, if possible, valid.

At the Symposium on Measurement of Reference in 1974, Bob Runyon said, "No business could operate without statistics on sales and customer transactions. Yet most university libraries are completely without any adequate measures of their users' needs and library activities. Many keep no counts of reference transactions and those that do seem not to be making effective use of them."[1]

In the ten years since that symposium, many studies have been published on the use of reference statistics. Articles on operations research and systems analysis appear frequently in the library literature. However, the same observation which was made in 1974 might be made today.

With such tools available, why are "use statistics" presented primarily as frequency counts in the annual report? Many managers ignore the tools of the management scientist for five major reasons:

1. Time constraints
2. Data is frequently inaccessible or unusable
3. Resistance to change

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[1] Robert S. Runyon, "The Library Administrator's Need for Measures of Reference," p. 9.

4. The management scientist may wish to spend too much time exploring the problem thoroughly
5. The management scientist may include too many invalidating simplifications for "real-world" use.[2]

Although these constraints are as much a problem to library managers as they are to other managers, it is in our own best interest to overcome them in cooperation with management scientists. Although setting up a system can be time-consuming, the potential benefits far outweigh the disadvantages.

THE DATA

The data used were collected by the library during the ordinary course of events, usually for use in the production of annual budget summaries, annual reports, and in support of budget change requests. Within the data available were demand and traffic counts pertaining to reference operations.

Such collection forms are common, but have one major shortcoming. They are designed to collect data for no specific purpose, but to collect data on "things people might want to know". This may lead to excruciating problems when the data is actually put to use in anything but rudimentary ways. For instance, the form used has a tremendous number of possible choices within a category. This in itself is not bad - IF SUCH

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[2] C. Jackson Grayson, Jr., "Management Science and Business Practice," pp. 43-45.

DETAIL IS NEEDED. In this case, there is no apparent reason for such a level of detail, given the uses to which the data have historically been put. Since data collation/condensation (statistical analysis) is a rather tedious and costly business, only that level of detail necessary should be included. This cannot be determined BEFORE the purpose of the data collection is known; in other words, the data collection process, from form design to results and analysis, should be designed for a specific purpose or purposes, rather than to collect "everything we might need". Such a design process will make the collection/analysis much more cost-efficient, freeing money for other uses.

The data used in this study were collected at the reference desk; the forms were filled in as questions occurred during the day, and then collected and stored for use. The database available for this study covers a period of twelve months beginning in January, 1982.

A point should be made here concerning semantics. In this paper, "data" is defined as facts or assumptions treated as facts, where "information" is defined as an assembled, relevant set of data. The point of any study such as this is to turn data into information for decision-making. The data here are facts about individual inquiries, where the point of the study is to provide information (relevant, timely, problem-specific) upon which to base policy/administrative decisions.

The first step in this process was to condense the data into manageable proportions; since each form contains at least five pieces of data, and the database contains 5,000+ such forms, some measure must be taken to reduce the data available without losing its essential dimensions. Statistical analysis provides such a "condensation" tool. Those data entries deemed necessary to the system dynamics model were subjected first to simple frequency counts, and then to mean/standard deviation treatment. The results of this latter treatment are presented in Table One.

Since the purpose of this study was "proof of concept", a much more compact database would both serve the purpose of the study and make the work involved much simpler, so a decision was made to extract three weeks data at random and operate these data. Expansion to the full database would simply be a matter of scale, not of quality. The weeks chosen were the first three weeks of February, 1982. It is recognized that patterns develop in academic libraries by semester, but such patterns could be easily accomodated in the later expansion with little additional effort, and such effort was not deemed necessary in this initial study.

These methods sufficiently condensed the data to usable form, so little further was done. It is recommended that, in a full-scale study, much more sophisticated analysis (i.e., two-way analysis of variance (ANOVA), multi-way ANOVA, correlation analysis, etc.) be done on the data prior to cascading the results into systems dynamics models. The quality of the latter is fully dependent on not only the skill of the model designed, but also on the integrity of the data fed into the model.

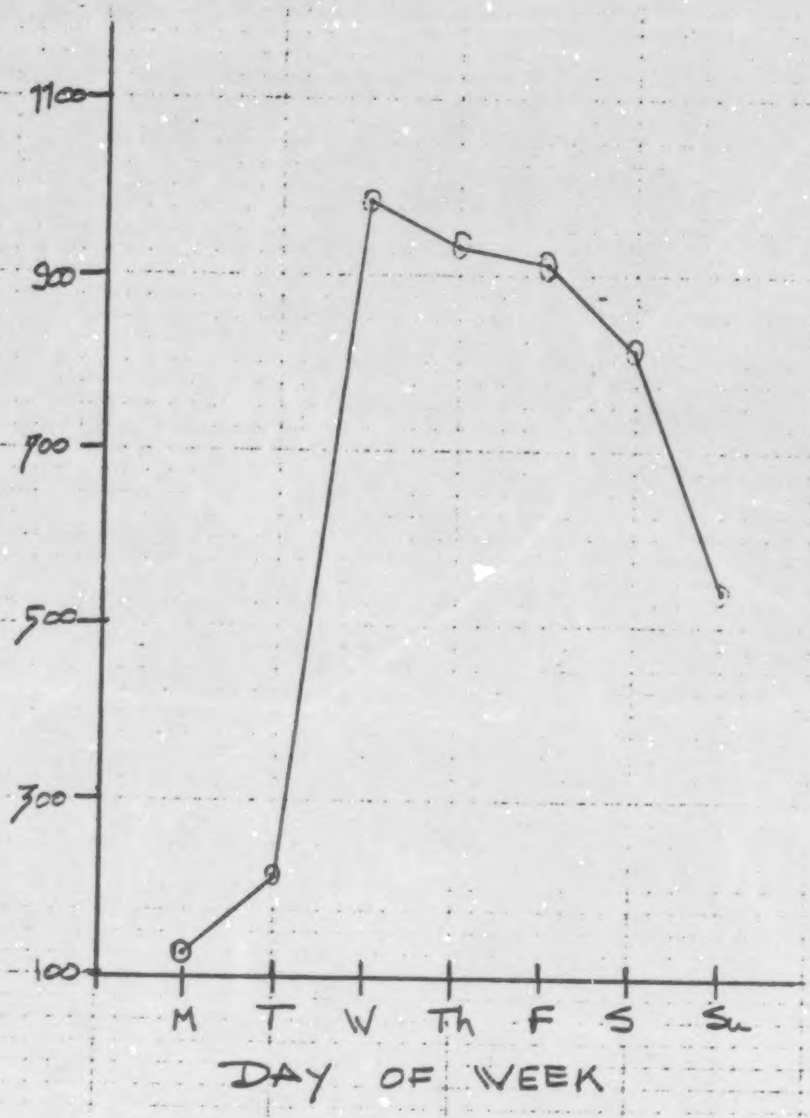

TABLE ONE: LIBRARY TRAFFIC
BY DAY (AVERAGE)

THE MODEL

"Models" are defined as simplified representations of reality; the simplification is necessary because of limitations on space, time, detail needed and so on. Models range from physical representations (plastic model aircraft and Barbie dolls) to symbolic representations (books, automobile gas gauges [representing/modeling remaining fuel], and mathematic models);[3] see Figure One. In general, symbolic models have two purposes: (1) descriptive - to describe what is presently occurring, and, sometimes, to describe what has happened previously, and (2) prescriptive - pointing out corrective action or alternatives that may be considered. For example, most automobile gas gauges are electrical meters whose dials are activated by a resistor network in the gas tank. As such, they do not actually show "fuel remaining", but their indicator position represents fuel remaining - a descriptive function. In addition, notice is served to the driver that action may be necessary in the near future to replenish the fuel supply if further driving is wished - a prescriptive function.

Mathematical models may be divided into two major subcategories: deterministic and stochastic. Deterministic models deal with situations whose parameters are known with certainty; for example, when standing on Earth, a dropped apple

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3. S. M. Lee, Introduction to Management Science, p. 21.

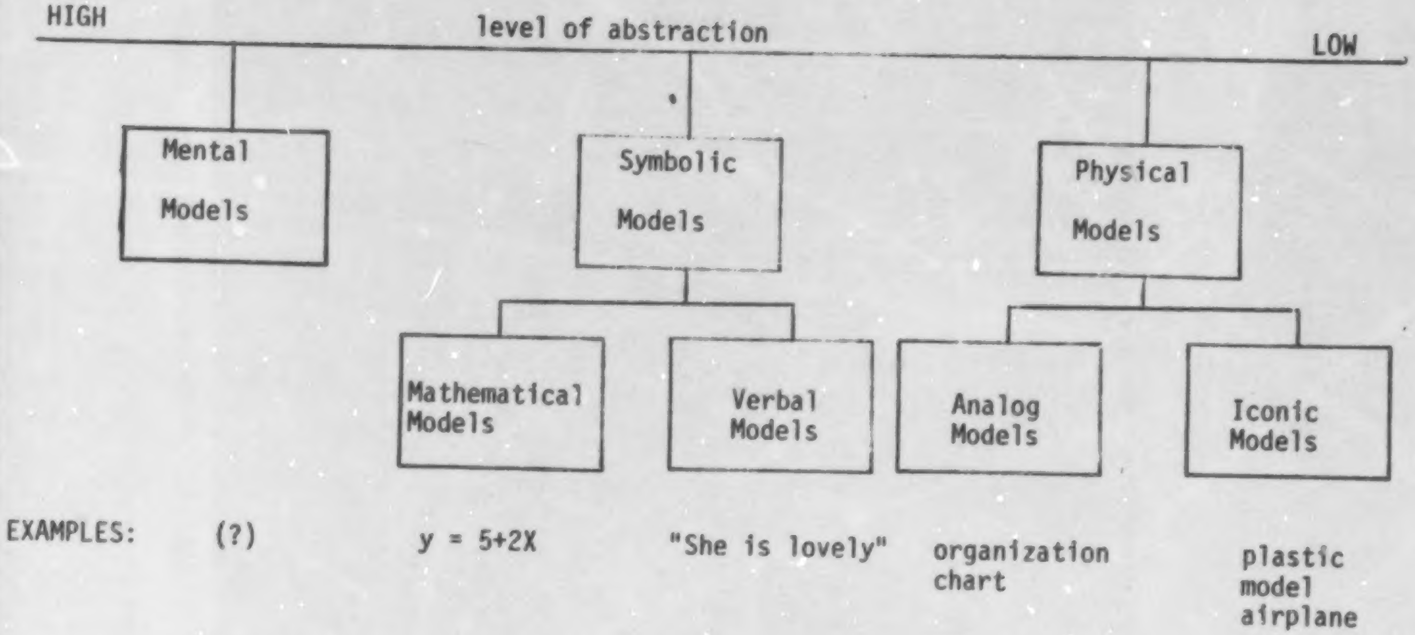

HIGH
level of abstraction
LOW
Mental Models
Symbolic Models
Physical Models
Mathematical Models
Verbal Models
Analog Models
Iconic Models
EXAMPLES:
(?)
y = 5+2X
"She is lovely"
organization chart
plastic model airplane

FIGURE ONE: Model Typology (Lee, S. M., Introduction to Management Science) will fall toward the center of the Earth - it will fall "down" at a given speed and acceleration. Many scientific models are deterministic - planetary motion, gas volumes, etc. On the other hand are models whose parameters vary in no certain manner, like library traffic, the national economy, and so on. These situations are said to be stochastic and require stochastic/probabilistic modeling processes.

One of the most commonly used stochastic modeling processes is simulation, defined "...as a means of deriving measures of performance about a complex system by conducting sampling experiments on a mathematical model of the system over periods of time."[4] The rationale of simulation is well-developed and proven. Table One shows the major advantages and disadvantages of simulation.[5]

Systems dynamics is a particular modeling technique dealing with simulation - modeling under active conditions (as opposed to the passive nature of statistics or model airplanes). In a systems dynamics (or DYNAMO, "dynamic modeling") study, data are input, the relationships between these data pieces is made explicit, and the model is "turned on" to examine the variable behavior over time. Probably the most famous DYNAMO model is Jay Forrester's world growth model that produced the Club of Rome's

[4] S. M. Lee, L. J. Moore, and B. W. Taylor, Management Science, p. 461.

[5] Lee, op.cit., p. 573.

ADVANTAGES	DISADVANTAGES
-allows controlled experimentation	-model development can be costly and/or time consuming
-reveals new facts about the problem	-computer(s) required
-allows a patchwork approach to model formulation	-is very sensitive to model formulation
-is an effective training tool	-gives no guaranteed optimal problem solution
-has a broad range of applications	-encourages tendency to overlook other techniques
-allows "what if" questions	

TABLE TWO: Advantages and Disadvantages of Simulation (Lee, *Introduction to Management Science*)

Limits to Growth report.[6] There are three requirements for production of DYNAMO results:

1. a computer that can accept a DYNAMO compiler (hardware),
2. a DYNAMO compiler (software), and
3. a DYNAMO model designer (the person who uses the hardware and software.

These requirements are, of course, in addition to a problem of interest and a database from which the problem, its elements, and the interrelationship of those elements may be examined. In this case, the problem became apparent through discussions between the authors and the database already existed. The simulation/model was run on an Apple IIe using the micro-DYNAMO package available from Addison-Wesley.[7] Additional peripherals necessary to the Apple IIe were twin-disk drive and a printer.

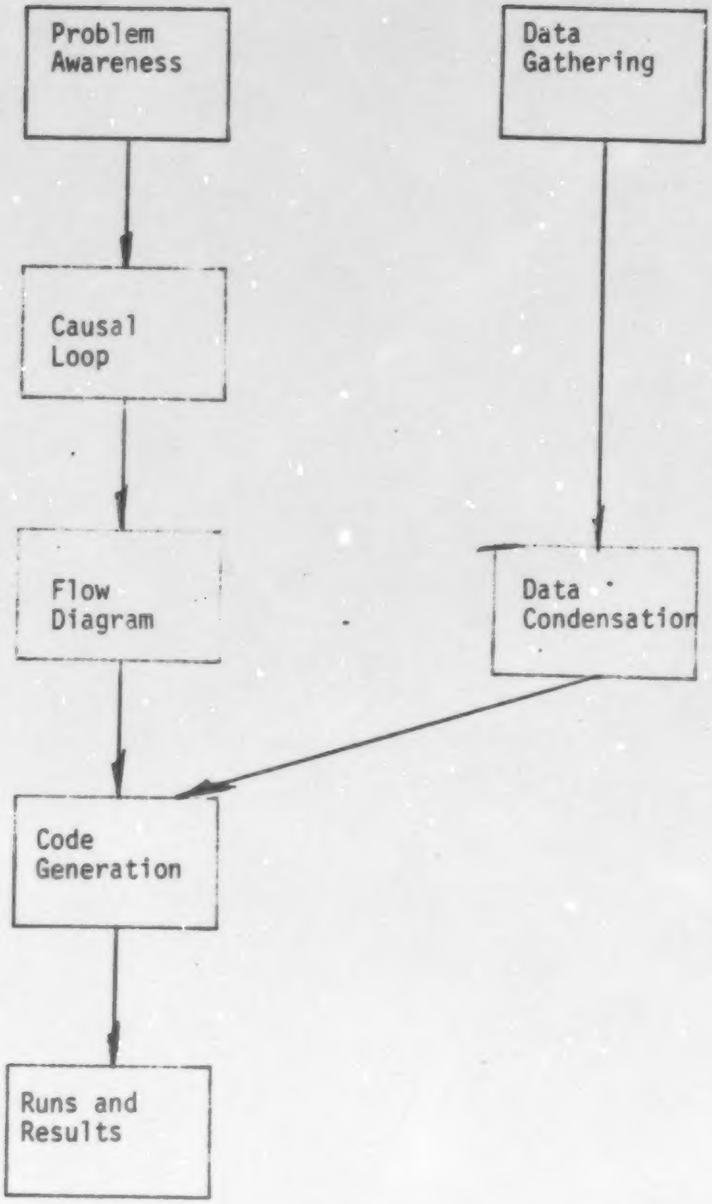
The DYNAMO modeling process, represented in Figure Two, consists of identifying the imperative variables, clarifying and making explicit the relationships between these variables, and then transforming this into a computer-understandable form. Identifying the variables and their relationships is done using causal loops; the causal loop diagram for this model is shown in Figure Three. The variables identified are tied to those

[6] J. W. Forrester, "Counterintuitive Behavior of Social Systems."

[7] Micro-DYNAMO: System Dynamics Modeling Language.

N. Roberts, D. F. Andersen, R. M. Deal, M. S. Garet, and W. A. Shaffer, Introduction to Computer Simulation: The Systems Dynamics Approach.

FIGURE TWO: DYNAMO Modeling


Problem Awareness
Data Gathering
Causal Loop
Flow Diagram
Data Condensation
Code Generation
Runs and Results

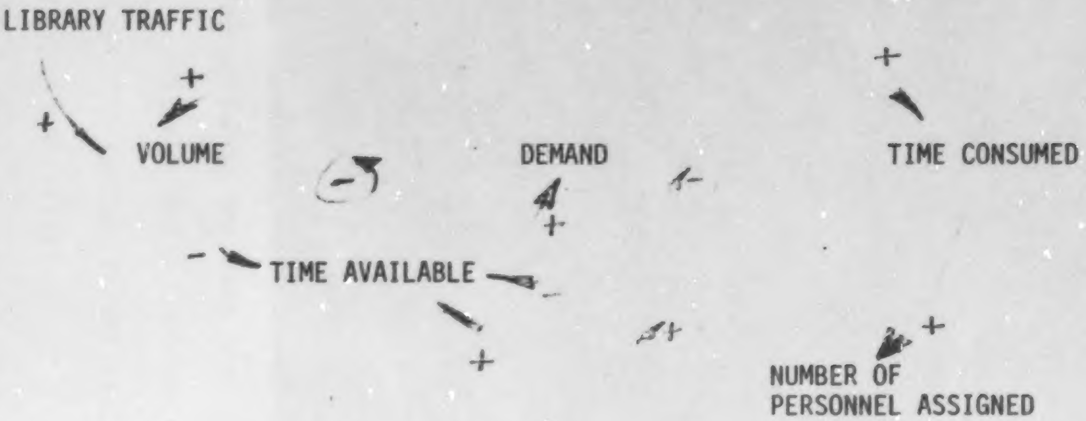

LIBRARY TRAFFIC
+
+
VOLUME
(-)
DEMAND
+
TIME CONSUMED
COST
+
-
-
TIME AVAILABLE
-
+
+
+
NUMBER OF
PERSONNEL ASSIGNED

FIGURE THREE: Causal Loop Diagram

variables which cause their behavior, and which in turn cause the behavior of the next variable. Loops are specified because often the behavior of a "downstream" variable literally causes a change in behavior of an "upstream" variable.

Following causal loop formulation, flow diagrams are generated. Flow diagrams provide a transition step between the "people-usable" causal loops and "computer-usable" DYNAMO code. They serve to make explicit the nature of the relationships between the variables and link this to the behavior of the variables. The flow diagram for this model is shown in Figure Four.

From the flow diagram is generated the actual DYNAMO code. This is usually the least-difficult task of the whole process. If the causal loop/flow diagram diad is correct, code generation usually flows smoothly. If such a smooth flow is not experienced, then there is most likely a flaw in either or both of the preceeding steps. Code for this model is shown in Figure Five.

Finally, the model is input (fed into the computer), debugged (ridded of typographical/syntax and logical errors), tested (run with "dummy" data to be sure that the model is doing what it is supposed to do), and then run. The first run, when "clean", produces baseline data that should reflect its real-world analog; in other words, the output of the initial run should resemble what actually happens in reality. Subsequent changes allow for testing of intended policy/administrative changes to see how the model (and thereby the real problem) will react if the change is

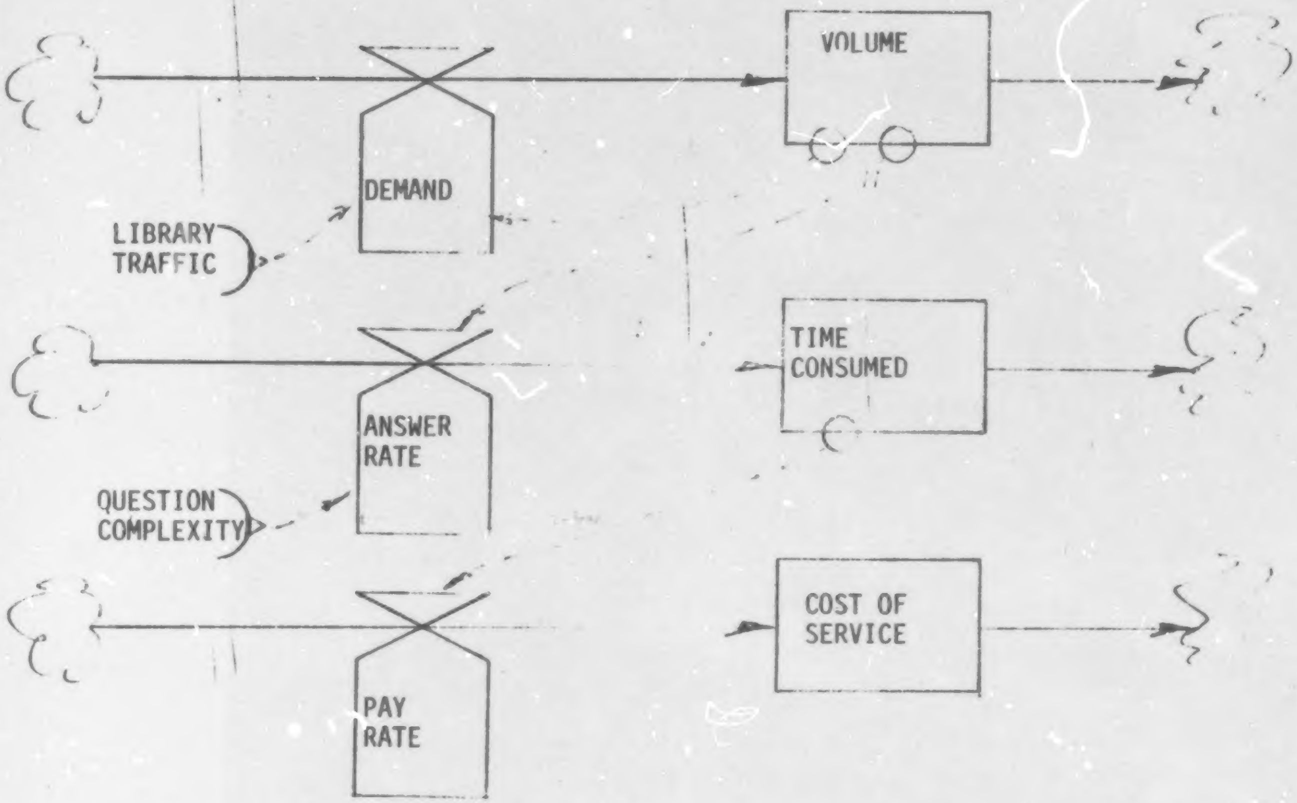

VOLUME
DEMAND
LIBRARY TRAFFIC
TIME CONSUMED
ANSWER RATE
QUESTION COMPLEXITY
COST OF SERVICE
PAY RATE

FIGURE FOUR: DYNAMO Flow Diagram

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*       LIBRARY REFERENCE-JOHN PAXTON-MK2 MOD3-MARCH. 1984
NOTE    **********     **********     **********
NOTE    THIS PROGRAM SIMULATES REFERENCE DEMAND. AND COSTS ASSOCIATED WITH
NOTE    PROVIDING THIS SERVICE.
NOTE    **********     **********     **********
NOTE    VOLUME IS A RUNNING TOTAL OF QUESTIONS ASKED AT THE REFERENCE DESK
L       VOLUME.K=VOLUME.J+(DT)(VCHG.JK)         PEOPLE(QUESTIONS)
N       VOLUME=0
R       VCHG.KL=DEMAND.K                        PEOPLE/DAY
NOTE    DEMAND=TRAFFIC (QUESTIONS) PER DAY
A       DEMAND.K=(DDAY.K)(TRAF.K)
A       DDAY.K=PDDAY.K*PCON                     ADJUSTED DEMAND PROBABILITY
NOTE    PCON ALLOWS FOR CHANGE IN DEMAND LEVELS/RATES
C       PCON=1
A       PDDAY.K=TABLE(PDEMAN.DAY.K.1.7.1)       PROB. OF DEMAND
NOTE    TRAF=LIBRARY TRAFFIC. GIVEN THE DAY OF THE WEEK
A       TRAF.K=MCON*LTRAF.K                     PEOPLE IN THE LIBRARY/DAY
NOTE    MCON ALLOWS FOR LIBRARY TRAFFIC GROWTH
C       MCON=1
T       PDEMAN=0.043/0.032/0.028/0.036/0.024/0.022/0.01
A       LTRAF.K=TABLE(TRAFIK.DAY.K.1.7.1)
T       TRAFIK=126/216/933/932/915/815/536
NOTE    THIS MODULE CALCULATES THE DAY OF THE WEEK. GIVEN
NOTE    THE DAY OF THE SIMULATION (I.E.. DAY 192=TUESDAY (DAY 2))
A       DAY.K=MAX(1.TTE.K-M.K)
L       TTE.K=TTE.J+(DT)(RATE.KL)
N       TTE=0
R       RATE.KL=1
L       M.K=M.J+(DT)(MCHG.JK)
N       M=0
R       MCHG.KL=PULSE(7.7.7)
NOTE    TCONS IS A RUNNING TOTAL OF TIME CONSUMED ANSWERING
NOTE    QUESTIONS
L       TCONS.K=TCONS.J+(DT)(ARATE.JK)          MINUTES
N       TCONS=0
NOTE    ARATE=ANSWER RATE
R       ARATE.KL=QCOMP.K*DEMAND.K               MINUTES/DAY
NOTE    QCOMP=QUESTION COMPLEXITY
A       QCOMP.K=NORMRN(MNCON.SDCON)             MINUTES/QUESTION
NOTE    MNCON (MEAN CONSTANT) AND SDCON (STANDARD DEVIATION CONSTANT)
NOTE    ALLOW FOR ADJUSTMENT IN QUESTION COMPLEXITY
C       MNCON=10
C       SDCON=4
NOTE    COSTSV IS A RUNNING TOTAL OF THE COST TO DELIVER
NOTE    THE REFERENCE SERVICE
L       COSTSV.K=COSTSV.J+(DT)(COSTRT.JK)       DOLLARS
N       COSTSV=0
NOTE    COSTRT=COST OF ANSWERING THE QUESTION
R       COSTRT.KL=ARATE.JK*PAYCON               DOLLARS/DAY
NOTE    PAYCON IS THE PAY CONSTANT. CALCULATED AT $16.000/YEAR.300
NOTE    DAYS/YEAR. 8 HOURS/DAY
C       PAYCON=0.12                             DOLLARS/MINUTE
SPEC    DT=1/LENGTH=300/PRTPER=10/PLTPER=10
PRINT   TRAF.VOLUME.TCONS.COSTSV
PLOT    VOLUME=V/TCONS=T/COSTSV=C
RUN
```

instituted.

Herein is the major advantage of simulation - policy changes can be instituted, run, and the results examined quickly, quietly, and inexpensively. Only those changes that show the desired OVERALL results are considered further. If changes show negative or unintended results, the policies under scrutiny may be rejected or modified and then rerun to examine their consequences.

RESULTS AND ANALYSES

The policies tested in the model, with associated results, are shown in Table Three. In this model, changes in the areas of library traffic patterns, reference traffic patterns, question complexity, and staff salary costs were examined for impact on the cost of providing reference service.

The five variables (MCON, PCON, MNCON, SDCON, and PAYCON) were changed singly and in combination, representing both policy and environmental variation; the impact of these changes on total direct labor costs is shown.

Rerun #0 represents the results of the baseline model, against which all subsequent changes will be judged. This model represents the current functioning of the library reference service.

Rerun #1 shows the effect of a 10% decline (i.e., the constants MCON and PCON were reduced from 1.0 to 0.9) in both library traffic and reference question volume, while rerun #2 shows a 10% decline in traffic coupled with a 10% increase in

RERUN NO.	MCON	PCON	MNCON	SDCON	PAYCON	TOTAL COST ($)
0	1.0	1.0	10	4	0.12	5672
1	0.9	0.9	-	-	-	4594
2	0.9	1.1	-	-	-	5615
3	1.1	0.9	-	-	-	5615
4	1.1	1.1	-	-	-	6863
5	-	-	5	2	-	2836
6	-	-	-	-	0.10	4727
7	-	-	-	-	0.15	7090
8	0.9	0.9	5	2	0.10	1914
9	1.1	1.1	-	-	0.15	8579
10	0.9	0.9	-	-	0.15	5743

NOTE: "-" signifies no change from Run #0

TABLE THREE: DYNAMO Results (Run/Rerun Changes) reference question volume. Rerun #3 shows the reverse of rerun #2, rerun #4 shows a 10% increase in both categories. In all rerun cases, the impact of the change is noted in total direct labor cost of service delivery.

Rerun #5 examines the impact of a decrease in question complexity (or an increase in reference efficiency). Reruns #6 and #7 deal with pay decreases or increases alone while rerun numbers 8, 9, and 10 deal with combinations of changes made simultaneously.

It should be noted here that, for this model, the causes for these changes are defined as "environmental", i.e., outside of the boundaries of the system under investigation. They are simply accepted, being neither explained nor accounted for. However, a more sophisticated model could be built, expanding the boundaries of the system to deal with this added complexity.

This set of rerun changes is not meant to represent realistic experimental design (i.e., testing the most important changes and combinations of changes), but as a sample of the usefulness of the technique. It is apparent that even a small model can provide a wealth of data; in this simple model alone, using only five varying parameters, there are twenty-seven different combinations of variables. In a more complex model, experimental design processes would have to be used to isolate those combinations of variables worth investigating.

In analysis of the service costs, their variation produced no surprises. However, levels of variation (i.e., absolute dollar amounts) provided data which may be available from no other source; in addition, since the model is "situation specific", the data are directly applicable to the decision context.

CONCLUSIONS

It has been demonstrated that this "technique transfer" has worked; the results are reliable and the technique application valid. Indeed, in this respect libraries are no different from other service-oriented concerns; costs have to be contained, resources used efficiently, and skills applied where most appropriate. Some of the recent reference literature deals with questions of professional/paraprofessional staffing of reference desks;[8] it is suggested that DYNAMO models could be of use in helping to provide answers to this and similar questions.

One very real danger must be addressed here. There exists an almost overwhelming desire to allow such models to "make decisions", instead of providing information to a human decision maker. This temptation MUST be resisted. Such models are limited in ability to deal with data and have NO ability to comprehend anything; the model/computer diad is simply fast, but has no intelligence. This diad can deal only with what has been fed into it; further, it can deal with this data only in the specific manner with which it has been programmed. It cannot point out alternatives, suggest techniques for analysis, show poor data, or anything else. These decisions must be made by humans. Only humans can handle the complexity and richness of a real decision context; to allow computers to make these decisions is folly.

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[8] Steven Falk, "Reference Service, Statistics, and Status."

Edward Jestes, "Why Waste Professional Time on Directional Questions."

While the purpose of this study has been fulfilled, there remains a great deal of work to be done. First, the full database must be addressed. This will provide a richer variety of situations (i.e., greater quantity). In addition, data quality must be improved; as mentioned earlier, the collection forms have already been redesigned. Tighter quality control should be exerted (i.e., making sure that the forms are used and used properly, etc.). These three measures, taken simultaneously, will vastly increase the quality and usefulness of this model. Finally, the model itself must be sophisticated. The causes of imperative variables (library and reference traffic, question complexity, etc.) must be explored and modeled. Simplistic assumptions, made for convenience to get the model "up and running", must be removed and replaced with real-world representations (such as costs as a function of who's manning the reference desk).

In conclusion, this data treatment worked; it is a valid and usable technique. While the complexity of application and the associated costs may seem high, it is suggested that over the operating life of a library the cost is low compared to development of piecemeal policy/administration. The opportunity costs of such ad hoc decisionmaking is staggering because of both direct impacts of the policies and the constant stream of changes that usually follow such decisions in any organization. It is not suggested that simulation will provide perfect information every time, only that such examinations will improve overall administration over time. If overall library management is improved, effectiveness and efficiency will also improve, quality of service will increase, and patron/client satisfaction will increase. The latter will improve job security of the staff, resource expansion will become easier, and the whole system will benefit. It is suggested that the costs associated with this technique are a small price to pay for such benefits.

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NEW LOAN POLICY:
A PRESCRIPTION FOR CALVIN T. RYAN LIBRARY

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ABSTRACT

In April 1981, the problem of collecting fines for overdue library material was studied. Out of the report from this study evolved a complete reevaluation of the loan policy at Kearney State College. The reevaluation covered not only the assessment of fines for users but also the extent of loan periods and the way grievances over fines and unreturned materials were treated.

The Apple II was used extensively in anticipation of the implementation of the new policy. Primarily it was used to produce lists of material checked out to faculty. The loan policy mandates such a list be sent to each faculty member before the last day of each semester.

The loan policy, known officially as "Policies, Guidelines and Procedures for Lending of Library Materials," became effective 16 January, 1984. In its infancy it has produced startling results, such as the return of material checked out to faculty and students for several years, a dramatic drop in overdue material and the effective use of an appeals procedure as a grievance device.

Background

The process of developing a new loan policy for the Kearney State College Library began in 1981. Just prior to that time there was concern on the part of the library administration that the collection of fines from students and the non-return of items checked out to both students and faculty were becoming severe problems. Thus in April 1981, a study was made to determine the amount of unpaid library fines by students and community users and the number of overdue materials checked out to all borrowers.

Data was collected from the library's overdue file (see Table I). That part of the study which focused on fines showed that for the academic year of 1980-81, unpaid student fines amounted to $1,672.00 and unpaid fines for community users were $448.00 for a total of $2120.00 in unpaid fines. This was a significant increase from the $507.25 in 1977-78 and the $1,277.90 in 1979-80. Further analysis indicated that as of May 1981, students had not returned 1,081 items and community users 268 items.

In an effort to determine if revisions in the loan policy for faculty members should be considered, their overdue file was also analyzed (see Table II). The number of items checked out was tabulated according to the type of material. The categories for types of material were: The Library of Congress book collection, government documents, microfiche and the curriculum collection -- which consists of children's books and

TABLE I

STUDENT FINES AND OVERDUE MATERIAL

FINES

	1980-81	1979-80	1978-79	1977-78
Student Fines	$1,672.00			
Community Users	448.00			
	$2,120.00	$1,277.90	$750.95	$507.25

OVERDUE BOOKS

1976 to 1981

Students	1,081 items
Community Users	268 items

TABLE II

FACULTY OVERDUES BY TYPE OF MATERIAL

1981

TYPE OF MATERIAL	NUMBER OF ITEMS	
Library of Congress Books		890
Curriculum Collection		
Curriculum File	56	
Children's Books	36	
Film Loops	183	
Film Strips	77	
Kits	47	
Models	9	
Records	168	
Slides	26	
Tests	139	
Tape Cassettes	34	
Transparencies	14	
Miscellany	7	
	796	796
Government Documents		111
Microfiche		9
TOTAL		1,806

non-book materials. Figures revealed the following items overdue: 890 books, 796 curriculum items, 111 government documents and nine microfiche for a total of 1,806 items overdue to faculty members. The oldest overdue was dated 1976. The replacement value for the overdue materials in the categories of books and curriculum was $41,052.48 (see Table III).

Planning

As a result of the study, the Library Director initiated a plan to develop a new loan policy. The approval of the college administration was given to the project and on 4 November, 1981, the Senate Library Committee gave approval to these intentions. From the minutes of the November Library Committee meeting is found a capsule of the scope of the problem.

> Heretofore the library had operated without a formal policy, making it difficult to address student complaints or to enforce certain restrictions on circulation and retrieval of materials officially belonging to the library but expropriated by various departments . . . Something must be done to reassert the library's control over accessioned materials . . . The new loan policy will cover at least these considerations: 1. fines, 2. the current laissez-faire attitude toward departmental borrowing, 3. the establishment of branch or "mini" libraries, 4. a recall of material procedure, and 5. an over-all appeal process.

The plan then was to form a new loan policy which would more clearly define the requirements for the circulation of materials, provide a mechanism for enforcement of these requirements and allow an appeals procedure to address unre-

TABLE III

ESTIMATED VALUE OF FACULTY OVERDUE MATERIAL

1981

TYPE OF MATERIAL	REPLACEMENT VALUE	
Library of Congress Books		$20,997.30
Curriculum Collection		
Children's Books	$ 295.56	
Film Loops	4,575.00	
Film Strips	1,673.98	
Kits	4,357.37	
Models	1,800.00	
Records	1,302.00	
Slides	1,300.00	
Tests	3,475.00	
Tape Cassettes	317.56	
Transparencies	280.00	
Miscellany	698.71	
	$20,075.18	20,075.18
GRAND TOTAL		$41,052.48

solved conflicts between the library policy and the user. Most importantly, the library administration would formally seek the psychological and moral support of the administration, faculty and students.

The Head of Circulation was appointed the task of preparing the initial draft of the new policy. Loan policies from other college and university libraries were examined and input was sought from the library faculty. The first draft of the plan was completed 11 December, 1981; the fifth and final draft was completed 15 April, 1983.

During this two year period, the Director kept the college administration, the Library Committee and the Deans informed of the progress. The Faculty Senate was kept informed via the minutes of the Library Committee.

Drafts of the policy were reviewed by the Library Committee and they provided valuable input. It was found in some instances they were more severe in their suggestions for offenders than the library staff; however, each idea was considered and their input was helpful. The Library Committee gave their final approval in April 1983.

Approval by the Faculty Senate was sought at the May 1983 meeting, but that request was tabled until the July meeting. In July, the Senate failed to meet for lack of a quorum. It had been hoped that Senate approval would be forthcoming in July so the policy could be implemented in August at the beginning of the Fall session.

The loan policy was discussed at the September and October Senate meetings. At the request of the Senate, clarification was made on two points and the motion again tabled until the November meeting. The Director was invited to speak to the Senate at this time to clarify any additional points. It was at this November meeting the loan policy was finally approved by the Senate. The policy would be implemented on 16 January, 1984, the first day of the Spring semester.

Student approval did not take a formal route. Several articles appeared in the student newspaper on the problems of unreturned library material and of the pending loan policy. A publicity campaign was begun with more press coverage and posters after approval was given by the Senate. Copies of the policy were available for review in the library.

Content

The policy in its final form includes most of the traditional information such as loan periods, renewal information, fine and overdue policies, recall procedures and borrower identification requirements (see Appendix 1). Some of the specifics of the policy are as follows:

1. Library material may be renewed once.
2. Materials checked out to faculty are automatically checked out for a semester and may be renewed for one additional semester.

3. Material on semester loan is subject to recall any time after one month from the check out date.

4. The due date for semester loans is the last day of the semester. A fourteen day grace period begins the day after the last day of the semester. Library materials must be renewed for the one additional semester or returned to the library by the fifteenth day or they will be considered overdue. The replacement charges of material checked out to faculty and not returned or renewed will be charged to the appropriate department and deducted from that department's book budget.

5. Fines for everything but periodicals increased from 50 cents a week with a $3.00 maximum fine to $1.50 a week with a $10.00 maximum fine per item.

6. Fines for periodicals increased from 25 cents a day with a $5.00 maximum to $1.00 a day with a $10.00 maximum.

7. Fines for reserve material increased from 25 cents to 50 cents for the first hour and from 10 cents to 25 cents for each additional hour.

8. An extra $1.00 a day charge is added to the fine if recalled material is not returned within four days.

9. Faculty members are not charged fines.

Included in the loan policy is a procedure for appealing library fines and charges (see Appendix 2). A Library Appeals Committee has been established to hear grievances of fines or charges that library users feel are unfair. The Appeals Committee is appointed by the Director and is composed of a faculty member, a student member, and a member of the administrative staff. The head of Circulation serves as an *ex officio* member.

Implementation

Methods of implementing the policy were worked out between November and January. Signs giving the effective date of the policy were posted in the library, handout slips with the most relevant parts of the policy were given to each person checking out materials, and appeal forms were offered to those who wished to pursue the grievance procedure.

Faculty, deans and administration were informed of the effective date of the policy via a letter from the Director. A letter was also sent to library support staff and library student assistants informing them they were no longer exempt from library fines.

On 6 January, 1984, an additional letter was sent to faculty who had unreturned material, along with an attached printout listing the overdue items. An Apple II was used to produce the list of overdue material for faculty. The call number, title, date due and replacement charges for each item was given on the printout.

The January printout was considered a preliminary list and was sent with the thought of giving faculty and administrators a semester to locate and renew or return material that in some cases had been checked out since 1976. Another printout will be sent to faculty 1 May, listing all items due or past due as of 10 May, 1984. The process of assessing departments for replacement costs will not begin until 25 May, 1984.

Results

Have spectacular or even mediocre results been seen from the new loan policy? Recent statistics show how the prescription is helping to cure some of the ailments.

The most obvious is the decrease in overdue notices sent and the number of items overdue (see Table IV). A comparison of figures from September through November 1983 with those from January through 15 April, 1984, shows that the number of overdue notices sent in 1984 decreased by 39.4 per cent, the number of items overdue decreased by fifty per cent. A further breakdown revealed that notices sent for periodicals decreased 36.3 per cent while the number of periodicals overdue decreased by 45.7 per cent. There was a decrease of 41.8 per cent on notices for all other overdue material and a 52.7 per cent decrease in the number of items overdue in this same category.

Based on the number of circulations for each of these

TABLE IV

OVERDUES

	9/83-11/83	1/84-4/15/84	Per Cent Of Decrease
Periodicals			
Items	1,309	711	45.7
Notices	587	374	36.3
All Other Materials			
Items	2,035	964	52.7
Notices	800	466	41.8
Total			
Items	3,344	1,675	50.0
Notices	1,387	840	39.4
Total Circulations:	31,903	29,648	

September to November 1983: One notice for every 23 items checked out

One item overdue for every 9.5 checkouts

January to 15 April 1984: One notice for every 35 items checked out

One item overdue for every 17.7 checkouts periods, it was found that for the 1983 period, one notice was sent for every 23 items checked out and one item became overdue for every 9.5 checked out. In the 1984 period, one notice was sent for every 35 items checked out and one item out of 17.7 check outs became overdue.

The loan policy has not deterred circulation of materials. The first three months of 1984 showed a twelve per cent increase in circulations over the same period of the previous year.

The appeals procedure has also been beneficial, primarily in the area of public relations (see Table V). Since January, fourteen appeals have been filed with the commitee. Of these, seven appeals have been denied, four have been waived and three reduced.

Faculty response to the loan policy has been positive and reassuring, especially when considering the number of items returned by faculty since implementation of the policy. Using the Apple II for the faculty overdue printout made it easy to get an accurate breakdown of the number of items checked out and the dollar amount for replacement charges. The information could be manipulated other ways such as a listing by department, one by the year the items were due, and by classification number.

Information gathered from the 6 January, 1984 faculty printout showed that 1,419 items were checked out with a replacement value of $41,739.67 (see Table VI). In two and one half months, these figures improved significantly with

TABLE V

LIBRARY APPEALS COMMITTEE

Fourteen Appeals Filed

Action: Seven Appeals Denied

Four Appeals Waived

Three Appeals Reduced

TABLE VI

FACULTY OVERDUES

6 JANUARY, 1984

TYPES OF MATERIAL		REPLACEMENT VALUE
596	Books	$12,223.00
773	Curriculum Documents Micromedia	28,557.60
50	Periodicals	948.72
1,419	Items	$41,739.67

23 MARCH, 1984

TYPES OF MATERIAL		REPLACEMENT VALUE
301	Books	5,997.53
408	Curriculum Documents Micromedia	13,013.99
47	Periodicals	937.72
756	Items	$19,949.24

756 pieces still checked out with a replacement value of $19,949.24. It is also expected faculty will use the appeals procedures once the end of the semester policies take effect.

The library has been on the new loan policy prescription for only three and one half months, but it is believed that many ailments are being cured and the prognosis is certainly encouraging.

APPENDIX 1

POLICIES, GUIDELINES, AND PROCEDURES FOR THE LENDING OF LIBRARY MATERIALS

CALVIN T. RYAN LIBRARY
Policies, Guidelines, and Procedures
for the
Lending of Library Materials

The following policies, guidelines, and procedures have been established to govern the lending of library materials. The staff of the Calvin T. Ryan Library reserves the right to add, delete or modify all or portions of these policies, guidelines, and procedures. The effective date of these policies, guidelines, and procedures is 16 January, 1984.

LIBRARY BORROWERS

Library Borrowers are categorized as follows:

1. Campus borrowers:
   a) faculty and faculty emeriti.
   b) graduate assistants.
   c) undergraduate and graduate students, full and part time.
   d) administrative personnel.
   e) support staff.
2. Off-campus borrowers:
   a) extended campus faculty.
   b) extended campus students, full and part time.
   c) students from other state colleges and universities.
   d) faculty from other state colleges and universities.
   e) community users.

IDENTIFICATION

1. Each borrower is responsible for presenting proper identification when checking out library material.
2. All persons associated with Kearney State College should present ID cards, whether permanent or temporary, issued by Kearney State College.
3. Community users should present identification issued by Calvin T. Ryan Library when checking out library material.
4. Students and faculty from other state colleges and universities should present current and valid identification from their institutions.
5. All ID cards are non-transferrable.
6. Each borrower is responsible for materials checked out in his/her name.
7. Each borrower is responsible for keeping the library informed of changes of address.

CONFIDENTIALITY OF CIRCULATION RECORDS

No name, address or other information concerning a borrower contained in any circulation records will be revealed to other persons except under conditions as stated in Calvin T. Ryan Library's "Privacy of Circulation Records Policy."

LOAN PERIODS

1. Library materials may be checked out for a period of four weeks except for the categories of materials as designated

below:

a) Curriculum Collection materials may be checked out for one week.
b) Red Tag Government Documents may be checked out for one week.
c) Microfiche and microfiche readers may be checked out for one week.
d) Periodicals, current and bound, may be checked out for two days.
e) Reserve materials may be checked out for two hours for in-library use.
f) Except when prohibited, reserve materials may be checked out of the library at the following times:
   i) 9:00 p.m. Sunday through Thursday.
   ii) 3:00 p.m. Friday.
   iii) 2:00 p.m. Saturday.
g) All reserve items checked out of the library are due one hour after the library opens the following day.

2. Any exceptions to the check-out periods stated above may be made at the discretion of the department head who is in charge of that part of the library's collection.

3. In the absence of the department head, the person responsible for determining exceptions to the check-out periods is:
   a) the Head of Circulation.
   b) the librarian scheduled at the Reference Desk.

4. Some library materials may not be checked out of the library. These materials are reference items, government documents reference items, items from the Archives/ Special Collection, indexes, abstracts, microfilm, college

catalogs, telephone books, newspapers and curriculum encyclopedias.

5. Books, non-book items and government documents will be checked out to Kearney State College faculty and administrative personnel for one semester, renewable by request for one additional consecutive semester.
6. All other library materials will be checked out to Kearney State College faculty and administrative personnel for the standard check-out periods.
7. Summer sessions will count as one semester.
8. Restricted tests may be checked out to special groups of users for one semester.

DUE DATE

1. Library material is due on the date specified on the transaction slip.
2. Semester loans are due on the last day of scheduled classes of each semester or summer session.
3. Reserve material is due at the circulation desk two hours after the time specified on the transaction slip.
4. Overnight or weekend reserve check-outs are due on the date and by the time specified on the transaction slip.
5. In the case of special permission check-outs, the due date is the date and/or time specified on the transaction slip.

RETURN OF LIBRARY MATERIAL

Library material is considered returned when:

a) it is returned to the Circulation Desk.
b) it is returned to the outside book drop.

HOLDS

1. Library users may place holds on material which is checked out.
2. Material on which a hold has been placed may not be renewed.
3. When material on which a hold is placed is returned, it is held at the Circulation Desk for the user requesting it.
4. If the material is not picked up within three (3) days after the user is notified by telephone of its availability or within five (5) days after the user is notified by mail, then it shall be returned to the shelves unless another hold exists on the material.
5. If two or more holds exist on any material, then the order of priority for availability shall be:
   a) Kearney State College users.
   b) interlibrary loan.
   c) community users.
6. If two or more holds exist on library material, and the persons placing the holds are in the same category, then the person with the earliest date of request shall have first priority.

RECALLS

1. Any library material may be recalled after the expiration of the due date.
2. Material on which a hold is placed may be recalled after the expiration of the due date.
3. Material is considered recalled when the user in whose name it is checked out is notified that it should be returned to the library.
4. Fines will be assessed if recalled material is not returned to the library within three (3) days of the recall if the user is notified by telephone.
5. In the case of a recall notification by letter, fines will be assessed according to a date specified in the letter, which shall be five (5) days from the date the letter is mailed.
6. Any material on semester loan is subject to temporary recall any time after one month from the date the material was checked out.
7. In the case of faculty or administrative personnel who have library material checked out on semester loan, the appropriate dean, department head, or immediate supervisor will be contacted if recalled material is not returned to the library within three (3) days.

RENEWAL OF LIBRARY MATERIAL

1. Any library material which is checked out may be renewed once unless a hold exists on the material.
2. Items checked out with special permission may not be renewed.
3. Library material may be renewed by presenting the material to be renewed at the Circulation Desk.
4. Renewals requested by presenting the transaction slips only at the Circulation Desk or by telephone will not be permitted.
5. Material on which a fine is owed may not be renewed until the fine is paid.

FINES AND CHARGES

1. Student and community users are subject to a uniform system of fines and charges for late return of library material and for replacement costs for lost or damaged material.
2. Student and community users are subject to fines and charges when:
   a) items checked out for four weeks or one week are returned to the library more than seven (7) days after the due date on the transaction slip.
   b) reserve items are returned late to the circulation desk.
   c) recalled items are returned later than three (3) days after the recall.

d) periodicals are returned to the library after the due date on the transaction slip.

e) special permission items are returned to the library after the due date and/or time on the transaction slip.

3. The fine schedule for student and community users is:

a) A fine of $1.50 per week per item, with a maximum fine of $10.00 per item is assessed for overdue library materials which have a four week or one week check out period.

b) A fine of $1.00 per day per item, with a maximum fine of $10.00 per item is assessed for periodicals returned late to the library.

c) For reserve materials, a fine of 50¢ for the first hour they are overdue and 25¢ for each additional hour is assessed.

d) A recall fine of $1.00 per day, beginning on the fourth day after recall notification, is assessed for recalled items.

e) The total fine for recalled library materials consists of two parts: 1) that which accrues as a result of the item being overdue, and 2) that which accrues after the item is recalled.

f) A fine of $1.00 per day or part of a day thereof after the due date and/or time on the transaction slip is assessed for special permission items returned late.

4. The due date for semester loans will be the last day of the

semester or of the summer session as defined by the College calendar. There will be a fourteen (14) day grace period beginning the day after the last day of the semester or summer session. Library materials must be renewed for the specified one additional semester or returned to the library by the end of the 14-day grace period. On the fifteenth (15th) day the library materials will be considered overdue.

5. In the case of semester loans for faculty, the cost of any items not returned or renewed within fourteen (14) days after the end of the semester shall be charged to the appropriate department and deducted from that department's book budget after consultation with the appropriate department head or school dean. For administrative staff, the appropriate administrative budget covering the administrative member will be charged by journal voucher after consultation with the appropriate administrative head.
6. Student and community users are subject to replacement or damage charges when:
   a) library material is reported lost.
   b) library material is returned in irreparably damaged condition.
   c) library material is more than one (1) year overdue.
7. Kearney State College academic departments and administrative units are subject to replacement or damage charges when:
   a) the faculty member or administrative borrower reports

library material as lost.

b) the faculty member or administrative borrower returns library material in an irreparably damaged condition.

8. A faculty member or administrator may elect to pay for lost or irreparably damaged library material, or to replace such material with an acceptable copy. In these cases the academic department or administrative unit would not be charged.
9. If library material is damaged through the use of faulty library equipment, the faculty member or administrative borrower will not be responsible for replacement of the material.
10. Replacement or damage charges are determined in accordance with Calvin T. Ryan Library's "Damage Policy."
11. In the case of lost or damaged library material, a borrower may elect to replace the material with an acceptable copy, which must be given to the library by the end of the semester in which it is reported lost or damaged, its acceptability to be determined by the Acquisitions Librarian.
12. All copies given to the library as replacements for lost or damaged material are subject to a processing fee.
13. In the event that library material, which has been reported as lost and for which a replacement charge has been paid, is returned to the library in an acceptable condition within a year, a refund of any replacement charge over $10.00, ex-

cluding the processing fee, will be made at the request of the borrower.

APPEAL OF LIBRARY FINES AND CHARGES

1. Library fines and charges may be appealed except for those fines and charges defined as replacement or damage charges.
2. Users who wish to appeal library fines and charges will make their appeal to the Library Appeals Committee after first securing and filling out an appeals form from the Circulation Desk.
3. The Library Appeals Committee shall consist of a faculty member, a student representative, and an administrative representative recommended by the Library Committee.
4. The Head of Circulation will serve as an *ex officio* member and advisor to the committee.
5. The Library Appeals Committee will decide on the validity of the appeals and will recommend appropriate action.

FAILURE TO PAY LIBRARY CHARGES AND MISUSE OF LIBRARY PRIVILEGES

1. Failure to pay library charges may result in:
   a) holds being placed on student grade reports.

   b) students not being allowed to register for future classes.
   c) in the case of graduating seniors, in holds being placed on transcripts and/or diplomas.
   d) revocation of borrowing privileges by the Library Director.
   e) any combination thereof.
2. Misues of library privileges may result in revocation of borrowing privileges.
3. Conditions which may result in revocation of library privileges may include, but shall not be limited to:
   a) harrassment of library staff.
   b) damage to library materials and equipment.
   c) damage to the library building.
   d) flagrant abuse of library rules concerning eating, smoking, drinking, etc.

APPENDIX 2

APPEAL FORM

Appeal pending ______________
Date of decision ____________

APPEAL FOR WAIVER OF REDUCTION OF LIBRARY FINES OR LOST BOOK CHARGES

Date ______________

PLEASE PRINT

Name ____ Social Security # ____________
Last First Initial

Address ____
Street City State Zip

INSTRUCTIONS: Appeals are filed with the Circulation Unit, Kearney State College. State fully the reasons for your appeal including relevant facts and extenuating circumstances. Your appeal along with the information shown by our records will be forwarded to the Library Appeals Committee. If you prefer not to appear in person but wish to be notified by letter of the decision, please check "written appeal only". You **must** complete (columns 1, & 2) on the form with the call number, and amount of fine for each volume that you are appealing. If your cumulative fine is less than $5.00 for the current semester, it is dropped at the end of the semester. However, all lost book charges must be paid.

TITLES APPEALED:

CALL NUMBER (1)	FINE AMT. (2)	REPL. COST (3)	S.L. (4)	SEARCHES (5)	ACTION (6)
Total	$______	$______			

APPEAL:

____
Signature

Written appeal only................. ☐

I would like to appear in Person.... ☐

January 1983

Date notice sent ____________________

See reverse side for information from Library's records.

BEST COPY AVAILABLE

A BEGINNER'S GUIDE FOR COMPILING JOURNAL LISTS FOR HIGH USAGE SUBJECT INDEXES VIA THE MICROCOMPUTER

Gale K. Gember

University Library

University of Nebraska

Omaha, Nebraska

ABSTRACT

The act (and/or art) of placing typed material on computer disk, compared to the typewriting apparatus with probable results of time and labor reduced, quick and easy insertion and editing features, and easily accessible duplicates of material. A step by step approach using the Serials Holdings List as found in the Reference department, University Library, University of Nebraska at Omaha and producing an abbreviated format for periodical subject indexes. The main purpose in writing this article is to acquaint the novice who is unfamiliar with microcomputers, a chance to view a particular problem (typewriting serials lists), find and select an easier alternate approach (computer and software) and briefly explain the advantages.

If one is not a rapid and accurate typist, chores involving lists of (and/or) many pages can be a laborious headache, especially if such chores are of a periodic nature. Has the age arrived when the not so inclined can find peaceful reassurance knowing that a much neglected chore will be produced with great precision and care? Of course there are those who will mention that a benefit of the typewriting apparatus is a professional looking product and the pride of knowing how to use such an instrument so diligently. But with tommorrow's equipment arriving today, such features exist and are as nearly automatic. "A word processor does what a typewriter can do, but it does it better, quicker and more efficiently." (Apple IIe Owner's Manual)

At the University Library we keep a record of periodical holdings on the main administrative computer, a UNIVAC. Two paper printout copies are released for the Reference department and this is termed the Serials Holding List. Also there are copies produced on microfiche. During peak study periods the ~~Serials~~ Holding List is in great demand. To help relieve the demand and continue to offer convenient service, abbreviated formats of the List were produced and placed in binders or folders corresponding to the appropiate subject index. These abbreviated formats contain only those journal titles listed in the subject index and subscribed by the University Library. The basic problem of retaining such formats is keeping the information current. Usually an update is needed once a year and as one might expect, much typing is required. The larger the index ,the more periodical titles and probable changes.

The first step of a format update is to compare the subject index of last year with the most current issue. Example; May 1984 Reader's Guide to Periodical Literature with May 1983. The changes would probably be new journal title additions and deletions and possible title changes such as Popular Electronics changed to Computers and Electronics. Comparing these changes to the Serial Holding List one might find all the changes previously mentioned but also changes involving volumes that the library has deleted from the collection or volumes placed on microfilm and fiche. Obviously these amendments will necessitate changes in at least page content of the abbreviated formats and most probably the retyping of the entire folder.

Originally, B.C. (before computer), I would cut and splice format pages sometimes only having to trim page length and splicing in a new journal title. Of course this resulted in a very patchy looking format but time was saved from having to retype an entire format.

Having registered for an introductory course in computing, I discovered the University's newly installed system, the VAX 11/780. This new system ended the dreariness of keypunching and episodes with mathematical

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formulas and I discovered with the VAX a remarkably easy and efficient way of using a deckwriter in place of a typewriter. It was easy to type, store, delete mistakes and print out any version of the file I desired. Also the paper scroll was of the same length and width as the paper used in the abbreviated formats. Diligently and without hesitation I began placing *Reader's Guide to Periodical Literature* on VAX but discovered some drawbacks in the process. Once the file had been saved, editing was by line segment only. If there was one minor error, the entire line would have to be retyped. Because the main purpose of the system was to primarily service many users, logging on during regular day hours was somewhat of a problem. Most of the terminals would be reserved sometimes for hours. Once on, the system response was usually painfully slow and because of its newness, there were constant breakdowns and shutdowns for new equipment or software.

While placing the second abbreviated format (Social Science Index) on VAX, the Reference Department in its infinite wisdom, purchased an Apple IIe microcomputer. At first I was hesitant of placing any abbreviated formats on an Apple disk primarily due to having to learn new commands and procedures and possible confusion with VAX commands, but after a few practice sessions my hesitation disappeared. Using the Applewriter program, I found many advantages over the VAX system. Editing features consisted of simple control/key commands. Deleting minor errors and moving text from one point to another was by no means difficult or time consuming. Page breaks were always a problem on the VAX system. With Applewriter it is a matter of a page break command (form feed). Other features: Word Wrap around, typing to the end of a line without need of a carriage return; Footnote Formatting; Word Counting; Search/replace, locating all occurances of a word or character string on a file and replacing or deleting with another string; and there are some word processing programs that can locate misspelled words and offer corrections or alternate wording.

Occasionally there will appear on the monitor screen, an error message. An error message is a system response to a misspelled command or problem with command structure. One should either retype the command or consult the appropriate program manual. Help screens are acceptable as brief explanations but are not well suited for syntax errors or misspellings.

In this era of microcomputers there are many different models and a large variety of programs on floppy disk and magnetic tape. With all these various programs, one should remember that programs of one computer type are not interchargeable with another type. If material is placed on the TRS-80 at home, it cannot be loaded on to the Apple II at the office. It would be wise before investing in a computer to first investigate different computer manuals and possibly program manuals to find the best format to fit

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the need.

For my project I became familiar with the Applewriter program, but there are other programs that can be used with slight variations. Wordstar for example is also a word processing program that is found on a variety of computer software. And for the picky provocateur, there is always the challenge of creating a personalized program. Keep in mind that writing a program can be extremely complicated and time consuming.

The main purpose in writing this article is to acquaint the novice who is unfamiliar with microcomputers, a chance to view a particular problem (typewiting serials lists), find and select an easier alternate approach (computer and software) and briefly explain the advantages. Remember these basics:

Define your need/problem
Find and match software
Combine the hardware with software

GUIDELINES FOR INDEX/SERIAL LIST

1. Compare current month (June) of current year with last year and same month for new serial titles and title changes. Make list.

2. Compare this new list with Serial Holdings List for library holdings.

3. Title changes should at this point be written on an old duplicate copy of format.

4. This copy should then be compared to the Serial Holdings List for other changes, such as volumes deleted, volumes placed on microfiche name changes etc. (proofread)

5. Use proofread copy to insert changes on index that will be or is on file. (disk)

6. Margins have been ten spaces up to call letters, allowing room for paper punching.

7. One blank line between entries.

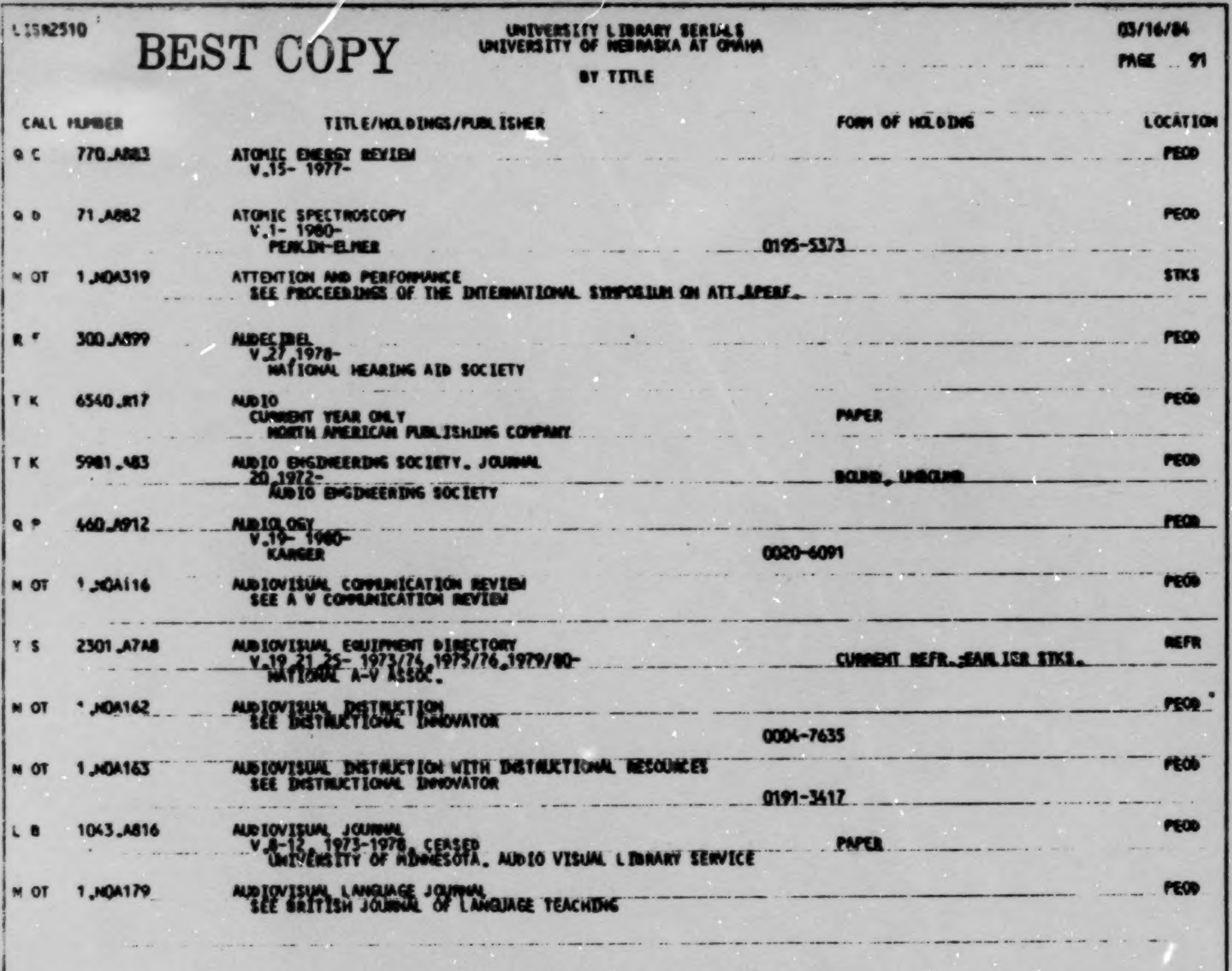
8. Page numbering should be handwritten on final printed copy, so as to not cause page congestion for future inserts.

9. Print one copy for next year's update session (duplicate), and observe for mistakes. No mistakes, make second copy to be placed in a notebook on the appropriate index table.

10 It would probably be wise to date the folder for those years covered by an update. If the index started publication in the early 1950's but the abbreviated format began in 1975, a footnote pertaining to earlier issues--consult master list (Serial Holdings List).

DEFINITIONS

1. BASIC: Beginner's All-purpose Symbolic Instruction Code
2. Binary Digits: 0,1
3. Bits: Binary Digits, eight bits= character
4. Byte: basic unit of measure of computer memory.
5. CPU: computer brain, 8 or 16 bit
6. CTRL: control key, used usually in conjunction with a character key to iniate a command
7. Command: a typed order; CTRL/Q = quit program
8. DOS: Disk Operating System; two basic types, CPM for business applications and proprietary (Apple DOS)
9. Decwriter: keyboard terminal with a paper scroll
10. Direct Access: instantaneous retrieval of information (disk)
11. Diskette: floppy disk
12. Firmware: factory installed program (ROM)
13. Hardware: computer equipment and optional devices
14. K: Kilobyte = 1,024 bytes (64K = 65,536 bytes or 32 typed pages)
15. Keyboard: used to type instructions to computer
16. Machine Language: binary code instructions of computer
17. Memory: retrievable storage area of the computer. Some memory's are 64K, 32K, 16K etc.
18. RAM: Random Access Memory; main memory of a computer
19. ROM: Read Only Memory; permanent built in BASIC
20. Sequential Access: time consuming retrieval of information (cassette)
21. Software: programs on floppy disk or magnetic tape



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LISR2510                         UNIVERSITY LIBRARY SERIALS                                            03/16/84
                              UNIVERSITY OF NEBRASKA AT OMAHA
                                                                                                       PAGE  91
                                         BY TITLE

CALL NUMBER                TITLE/HOLDINGS/PUBLISHER                   FORM OF HOLDING                LOCATION

Q C    770.A883            ATOMIC ENERGY REVIEW                                                         PEOD
                             V.15- 1977-

Q D    71.A882             ATOMIC SPECTROSCOPY                                                          PEOD
                             V.1- 1980-
                               PERKIN-ELMER                           0195-5373

M OT   1.NOA319            ATTENTION AND PERFORMANCE                                                    STKS
                             SEE PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON ATT.&PERF.

R F    300.A899            AUDECIBEL                                                                    PEOD
                             V.27,1978-
                               NATIONAL HEARING AID SOCIETY

T K    6540.A17            AUDIO                                                                        PEOD
                             CURRENT YEAR ONLY                        PAPER
                               NORTH AMERICAN PUBLISHING COMPANY

T K    5981.A83            AUDIO ENGINEERING SOCIETY. JOURNAL                                           PEOD
                             20,1972-                                 BOUND, UNBOUND
                               AUDIO ENGINEERING SOCIETY

Q P    460.A912            AUDIOLOGY                                                                    PEOD
                             V.19- 1980-
                               KARGER                                 0020-6091

M OT   1.NOA116            AUDIOVISUAL COMMUNICATION REVIEW                                             PEOD
                             SEE A V COMMUNICATION REVIEW

Y S    2301.A7A8           AUDIOVISUAL EQUIPMENT DIRECTORY                                              REFR
                             V.19,21,25- 1973/74,1975/76,1979/80-     CURRENT REFR.;EARLIER STKS.
                               NATIONAL A-V ASSOC.

M OT   1.NOA162            AUDIOVISUAL INSTRUCTION                                                      PEOD
                             SEE INSTRUCTIONAL INNOVATOR
                                                                      0004-7635

M OT   1.NOA163            AUDIOVISUAL INSTRUCTION WITH INSTRUCTIONAL RESOURCES                         PEOD
                             SEE INSTRUCTIONAL INNOVATOR
                                                                      0191-3417

L B    1043.A816           AUDIOVISUAL JOURNAL                                                          PEOD
                             V.8-12, 1973-1978, CEASED                PAPER
                               UNIVERSITY OF MINNESOTA. AUDIO VISUAL LIBRARY SERVICE

M OT   1.NOA179            AUDIOVISUAL LANGUAGE JOURNAL                                                 PEOD
                             SEE BRITISH JOURNAL OF LANGUAGE TEACHING
```

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fig. one Serial Holdings List

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```
122                                   PERIODICAL HOLDINGS
                                       READER'S GUIDE
                                     GENERAL SCIENCE INDEX

               Aging       US Document
               #1, 1951 - #98, 1962              FS 1.13:nos
               #99, 1963 - #134, 1965            FS 14.9:nos
               #135, 1966 - #158, 1967           FS 15.10:nos
               #159, 1968 - #182, 1969           FS 17.309:nos
               #183, 1970 - #224, 1973           HE 17.309:nos  (#219-224 film als
               #225, 1973 - #278, 1977           HE 1.210:nos   (film also)
               #279, 1978 - #303, 1979           HE 23.3110:nos (#279-303
                                                                 film also)

BX801          America
A5             v. 103, 1960 -           (film v. 114-131; fiche v. 132- )

N1             American Artist
A512           v. 1, 1937 -         (film v. 1-8; fiche v. 24 -)

QH301          American Biology Teacher
A7             v. 1, 1936 -         (film v. 1-25)

HT151          American City and County
A35            v. 1, 1909 -         (film v. 1-13; v. 34-37; v. 44-63;
                    fiche v. 89- )

RM214          American Dietetic Association Journal
A6             v. 26, 1950 -

NK1            American Craft      incorporated Craft Horizons
C73            v. 1, 1941 -         (film v. 1-30)

               American Education       US Document  Latest year Reference
               v. 1, 1965 - v. 5, 1969           FS 5.75:v.no.&nos.  (film also)
               v. 6, 1970 - v. 10, 1974          HE 5.75:v.no.&nos.  (film also)
               v. 11, 1974 - v. 15, 1977         HE 19.115:v.no.&nos.(film also)
               v. 16, 1980 -                     ED 1.10:v.no.&nos.

E171           American Heritage
A43            v. 1, 1949 -         (fiche v. 12- )

E171           American Historical Review
A57            v. 1, 1895 -         (film v. 1-10; fiche v. 78- )

E171           American History Illustrated
A512           v. 1, 1966 -

NA7100         American Home
A45            v. 67, 1964 - v. 81, 1976         (film v. 67-75;
                   fiche v. 76-79)

BF173          American Imago
A2A249         v. 1, 1939 -         (film v. 1-28; fiche v. 31- )

QK1            American Journal of Botany
B345           v. 1, 1914 -
```

fig. two Original Typed Abbreviated Format

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                                         READER'S GUIDE/GENERAL SCIENCE
                                          PERIODICAL HOLDINGS


            Aging                               U.S. Document
             #1-#98, 1951-62                     FS 1.13;#
             #99-#134, 1963-65                  FS 14.9;#
             #135-#158, 1966-67                  FS 13.10:#
             #159-#182, 1968-69                  FS 17.309:#
             #183-#224, 1970-73                  HE 17.309# (film 219-224)
             #225-#278, 1973-77                  HE 1.210:# (film also)
             #279-#303, 1978-79                  HE 23.3110:# (film also)

BX801       America
A5          v. 103, 1960-         (film v. 114-131; fiche v. 132-)

N1          American Artist
A512        v. 1, 1937-           (film v. 1-8; fiche v. 24-)

QH301       American Biology Teacher
A7          v. 1, 1938-              (film v. 1-25)

HT151       American City and County
A35         v. 1, 1909-        (film v. 1-13; v. 34-37; v. 44-63)
                               (fiche v. 89-)

RM214       American Dietetic Association Journal
A6          v. 26, 1950-

NK1          American Craft  (incorporating Craft Horizons)
C73         v. 1, 1941-         (film v. 1-30)

            American Education              U.S. Document
            v.1-5, 1965-69      FS 5.75:# (film also)
            v.6-10, 1970-74     HE 5.75:#  (film also)
            v.11-15, 1974-77    HE 19.115:# (film)
            V. 16, 1980-                    ED 1.10: v.no.& nos.
            Latest Year Reference


E171        American Heritage
 A43        v.1, 1949-  (film v.1-5; fiche v.12-)

E171        American Historical Review
A37         v.1, 1895-          (film v. 1-10; fiche v. 78-)

E171        American History Illustrated
A512        v.1, 1966-

NA7100      American Home
A45         v.67-81, 1964-78 (film v.67-75; fiche v.76-79)

BF173       American Image
A2A249      v.1, 1939-          (film v.1-28; fiche v.31-)

QK1         American Journal of Botany
B345        v. 1, 1914
```

fig. three VAX/Apple Dot Matrix Print of Abbreviated Format

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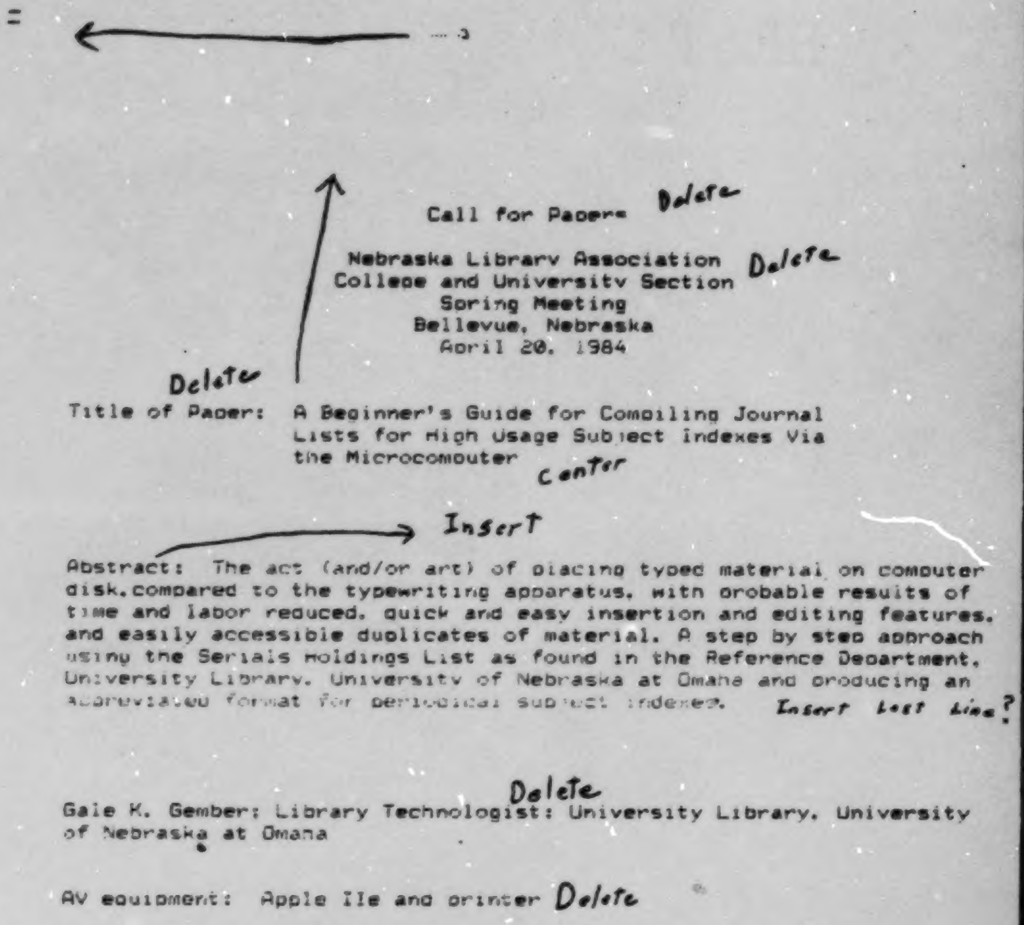

Call for Papers Delete

Nebraska Library Association
College and University Section
Spring Meeting
Bellevue, Nebraska
April 20, 1984 Delete

Delete

Title of Paper: A Beginner's Guide for Compiling Journal Lists for High Usage Subject Indexes Via the Microcomputer Center

Insert

Abstract: The act (and/or art) of placing typed material on computer disk, compared to the typewriting apparatus, with probable results of time and labor reduced, quick and easy insertion and editing features, and easily accessible duplicates of material. A step by step approach using the Serials Holdings List as found in the Reference Department, University Library, University of Nebraska at Omaha and producing an abbreviated format for periodical subject indexes. Insert last line?

Delete

Gale K. Gember: Library Technologist: University Library, University of Nebraska at Omaha

AV equipment: Apple IIe and printer Delete

fig. four Delete/insert of Original First Page

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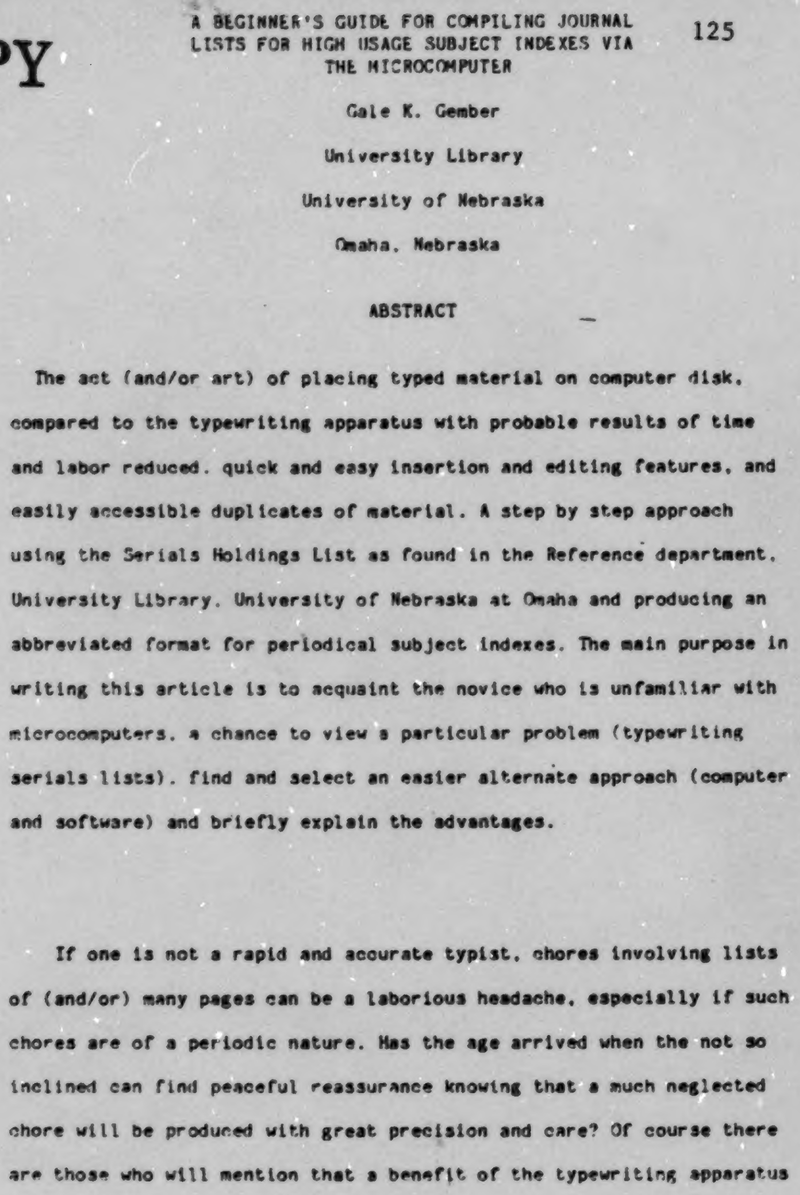

125

A BEGINNER'S GUIDE FOR COMPILING JOURNAL
LISTS FOR HIGH USAGE SUBJECT INDEXES VIA
THE MICROCOMPUTER

Gale K. Gember

University Library

University of Nebraska

Omaha, Nebraska

ABSTRACT

The act (and/or art) of placing typed material on computer disk, compared to the typewriting apparatus with probable results of time and labor reduced. quick and easy insertion and editing features, and easily accessible duplicates of material. A step by step approach using the Serials Holdings List as found in the Reference department, University Library. University of Nebraska at Omaha and producing an abbreviated format for periodical subject indexes. The main purpose in writing this article is to acquaint the novice who is unfamiliar with microcomputers. a chance to view a particular problem (typewriting serials lists). find and select an easier alternate approach (computer and software) and briefly explain the advantages.

If one is not a rapid and accurate typist, chores involving lists of (and/or) many pages can be a laborious headache, especially if such chores are of a periodic nature. Has the age arrived when the not so inclined can find peaceful reassurance knowing that a much neglected chore will be produced with great precision and care? Of course there are those who will mention that a benefit of the typewriting apparatus

fig. five Finished Product, First Page

CREDITS

1. Apple IIe, Applewriter: a trademark of Apple Computer, Cupertino, CA.

2. TRS-80: a trademark of Tandy, Inc., Fort Worth, TX.

3. VAX: a trademark of Digital Equipment Corp., Nashua, N.H.

4. Wordstar: a trademark of MicroPro International, San Rafael, CA.

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SYSTEMS IN NEBRASKA

Ella Jane Bailey

University Library

University of Nebraska
at Omaha

Omaha, Nebraska

ABSTRACT

Library resource sharing through multitype library systems has become a major trend in several states. How the systems were started and the justification for their existence has been of growing interest. Nebraska Library Commission has reorganized the State into six systems. What the systems are doing now and what they can do in the future will depend on legislation.

The start of library systems is not a new concept. It began basically at the turn of the century. The library service was available, shall we say to the city dwellers, but there was a large number of rural Americans that were not getting any type of library service and librarians were trying to figure out new ways to serve this population. The State Library Commissions were formed to achieve some type of universal library service and the first conclusion was that the county would be the best way of extending library services to those areas which did not have any services. The type of county library service that we did achieve were three types: libraries that are a part of county governments, libraries that are part of both city and county governments, and municipal libraries that serve the county by contract. Some libraries serve entire counties, some only serve a portion.[1] The key to this library service is that a legal structure, the county library, is a department of county government. The county libraries made a great effort, but when public library service was re-evaluated after World War II the following conclusion was reported by Carlton B. Joeckel in his monumental work, National Plan for Public Library Service written in 1948:

> "Taken as a whole, library service in the United States falls far below the standard set by the best libraries for three major reasons. First, one fourth of American people live in places where there are no libraries; second, there are far too many administrative units. The typical unit is too small, too weak in economic ability to provide effective library service. And third, the average level of library support is so low that service in a large portion of American libraries can be no better than mediocre."[2]

The recommendation that was made from this report by the American Library Association was as follows:

> "By developing plans for joint and cooperative programs, public libraries will be tied together in a network that goes far to equalize library opportunity and to bring the resources of the strongest libraries to all the people. Each separate taxing district in the county cannot maintain full library resources. Large cities and counties should be able to do so, providing in one or more centers facilities that meet full standards even though they are not achieved in all neighborhood units. Groups of smaller, taxing districts can also provide access to resources that meet these standards, if they operate together in library systems. The immediate availability of the full range of facilities will differ from locality to locality, depending on population and wealth, but there is no reason for

> sub-standard facilities in any part of the country or in any section of a states."[3]

Thus, the library system concept came into existance.

Multi-Type Library System

Multi-type library systems can be defined as a combination, merger or contractual association of two or more types of libraries (academic, public, special or school) crossing jurisdictional, institutional or political boundaries, working together to achieve maximum, effective use of funds to provide library and information services to all citizens above and beyond that which can be provided by one institution on a local level.[4] This is a much more far reaching concept than the original public library system, but the trend today because of the new technology coupled with the flood of print and non-print materials requires a new pattern of library organization so that inter-library reference and research, loan systems can include more of a major public, academic, and special libraries in a state. There are many states that have networks, there are states that have systems, and there are states that have multi-library systems. Some states even have a combination. When you check the thirty-sixth edition of the American Library Directory, you will find that they have seven states specifically listed as having multi-library type systems, but in all actuality there was approximately fifteen states that have multi-type library systems in this country right now.[5]

Within the American Library Association Organization, there is the Association of Specialized and Cooperative Library Agencies which has a section entitled, Multi-Type Library Cooperation Section. This section was formed in the late nineteen-seventies and their purpose is to study, improve, promote, and represent the interests and activities of libraries involved in statewide, multi-state, and national cooperation of cooperatives and multi-type library systems and information networks designed to provide a nationwide, information, delivery system which equalizes access to information resources. To provide a forum for discussions, programs, and planning designed to stimulate and assist members to achieve effective coordination of library resources and services through multi-type library cooperation.[6]

Two major considerations have to be kept in mind when thinking about multi-type library cooperation: one is legislation, and second is funding. Legislation has been a difficult problem. There are many different statues according to different states on what types of libraries can organize, and how many and grouping. For example, the wording on many statues is similar but still there is little differences. The legislation is Maine, Illinois, Indiana, and Rhode Island, specifically authorize:

> "All types of libraries to merge and provide more effective library service."

Alaska, Arizona, Maryland, Idaho, authorize:

> "Some state agency to provide the necessary leadership and guidance that would result in coordinated library activities."

In other states, a blanket law permitting:

> "Two or more public agencies to enter into agreements with other agencies for joint or cooperative action"

is used as a basis for multi-type cooperative development.[7] Of the fifty-two states, there are only twenty-nine that have some type of enabling legislation to either support, specifically permit, or allow by contract some type of multi-library cooperation. The second item to consider with multi-type libraries is funding. There are several factors that may account for the funding problem. First, the multi-type cooperatives do not have a long tradition of service. Second, the concept of the multi-type library cooperative is difficult to explain to the general public and to the legislator. For the past ten years, this type of organization has had to establish its feasibility and its needs. It has had to prove itself to the library community and to explain its existance to everyone. Since it's not a walk-in type of library, its existance is invisible to the public. Multi-type library cooperatives need publicity and a hard sell.

State agencies have historically been the leaders in the distribution of public monies for various services. For example, state librarians from state library commissions have administered LSCA funds as well as other federal funds to libraries. In many cases, the state library agency is the proper agency for coordinating and funding multi-type library cooperatives, but there are things that libraries and librarians must keep in mind when they're depending on a state agency for funds. Ethel Crockett outlined concerns librarians may have using a state agency as an administrator. 1. Librarians need to have the roles of their state agencies well defined. 2. They have to have a voice in decisions made about statewide library development as it effects the libraries and patrons. 3. They need to look at their state agencies to develop legislation needed to support cooperative programs. 4. They need to receive technical assistance to carry out cooperative programs. For example, librarians in isolated geographic areas naturally form cooperative arrangements for maximum access to information. When linkage to other similar groups as planned, the state library staff is in a position to answer the logical questions of to whom, where, and how to get your help. 5. They expect their state library agency to have staff representative of all sectors of the library community in order that their problems are well understood when planning and development decisions are made. Librarians are quite receptive to the state library's role in coordination of multi-type cooperation when they perceive that that agency understands their needs and limitations.[8]

For the development of statewide, hierarchal systems, a strong state library or state library agency is a requisite with such strengths to be in the terms of authority, finances, and status of state government. Another necessity is the availability, normally within the state, of the levels of library resources required to meet the needs of the state's libraries, a condition met by adequate financial assistance and power, whether in statue or legislation, to direct the development of these resources. Legal authority must exist for the participation of the individual libraries in a state, hierarchal system.[9]

Nebraska Library Systems

Nebraska started regional library systems in 1982. The interium planning boards were set up for six regional library systems in the state. The system for this section of the state is called Eastern Library area which is 4% of the total area of Nebraska. Of the total population, 419,500, or 73%, reside within the service area of a public library in the system. Since the 27% unserved by public libraries reside in a comparatively small area, the distance for service does not represent a great problem. The greatest need is for cooperation in sharing the wealth of resources with all the residents of the system. The system has many resources: 38 public school districts and a number of non-public schools; three educational service units, one in Fremont, two in Omaha; and sixteen special libraries, for example, business, hospital, museum, and church libraries. With this amount of resources available to us, there has to be some mechanism to share resources.

The purpose of the system is to improve library and information service to every individual community in the urban and rural area. The cooperative system is potentially the most successful mechanism for combining the talents and resources of a group of independent libraries to attain this goal. According to the bylaws and articles in the corporation, the Eastern Library System is a non-profit organization of librarians, library trustees, and other residents of the system area interested in the promotion of library services.

One of the things that has been a major problem for systems in Nebraska is the lack of legislation. To create a library authority requires an act of a state legislature and this act would have to contain: 1) the geographical area of the authority must be specifically delimited; 2) the purpose and powers of the authority must be fixed; 3) the procedure for establishing the authority must be clearly defined; 4) the governing body for directing the authority must be prescribed; 5) and the method of funding the authority must be formulated.[10] The legislation would need formulas built in to adjust funding according to growth in the system.

There are major potentials in a system. Robert McClarren has reviewed the activities in existing systems and has identified at least positive expectations. The first expectation is areawide access to library materials. The material and staff resources of the areas libraries are open to area library users either on a person basis or through inter-institutional borrowing. While these means of access existed long before systems, the systems have the capacity to negotiate formal programs of access. These programs can be coordinated and monitored to insure communication and the efficiency of the delivery systems. Second, the system can supplement the services existing in member libraries such as local audio-visual and reference services by providing a source for referring booking requests or reference questions that cannot be satisfied locally. The systems can provide new services such as collections and services on special subjects, directory compulations, and services to institutional users in the systems area. The Eastern Library System has PRE-PACKAGED COLLECTIONS on subjects: automotive repairs, child care, energy, gardening, home repair, physical fitness, vocational guidance. These collections can be borrowed for a two month period and especially helpful in supplementing small public libraries and school library projects. Third, the system is a convenient vehicle for organizating the operations of a shared quantity purchasing of materials and services. Fourth, there is efficiency and increased satisfaction in providing access to library resources in other libraries. Systems can establish, maintain, and service the centralized record of bibliographic resources available in the system. Many school libraries have serial titles that are not held by academic or other types of libraries. Fifth, the system, a creature of the libraries it serves, can have the advantage of location, sensitivity, accessibility which makes the system more appropriate advisory agent on library than the traditional responsible library state agency. Sixth, the identification and study of problems in the systems area can be done by the system using a needs accessment survey as one tool. Once the problems are identified special projects or programs can be implemented to resolve the problem, such as area wide public relations projects, library programs for special groups such as hearing impaired, or develop locally supported library services where none now exist. Seven, the system provides for area wide identification, increased visibility to their neighbors of the individual libraries and activities, the facilitation of interlibrary loan communication. This visibility can be the stimulus of peer pressure for improvement of library facilities, resources, programs, and professional responsiveness and participation. Eighth, the system provides the opportunity for collective political actions. Despite indications of the current increasing importance of legislation and other political acts to the maintenance and improvement of the position of the library in society, libraries generally have little priority to political action. There are understandable reasons for this absence of political activity: a lack of emphasis in library tradition and in library education; a feeling that political action is unseemly for libraries; and a lack of political know-how. The system, by providing a vehicle for motivation, and for training and education, by supplying information and advisory service, and by facilitating group efforts, gives an exceptional opportunity to the library community to be effective in political action.[11]

FUTURE

The success of Systems in Nebraska will first depend on legislation. The library statues need to be revised and updated. Second, a better funding mechanism based on per capita and per square mile basis for each system. The state has to have some kind of formula in legislative form to give systems an adequate tax base to function. It is very difficult to function in theory when there are no funds to pay for services the system needs to provide. For systems to succeed in Nebraska, the Nebraska Library Association needs to continue its support of changing library legislation. The Nebraska Library Commission needs to maintain leadership and support coordinating staff for systems. The Regional System Planning Boards need to implement programs and/or services with the library aid allocated to them this July

1st, which will make a substantial contribution to library service to citizens in their region. Let us strive to attain library service in Nebraska which will be available to all citizens when they need it.

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8. Hamilton, Multitype Library Cooperation, p. 57.

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THE LIBRARY INTERNATIONAL AFFAIRS COMMITTEE AT THE UNIVERSITY OF NEBRASKA AT OMAHA

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ABSTRACT

The activities, goals, history, and organization of the International Affairs Committee of the University Library are discussed. Committee activities increase the visibility of the library and librarians, broaden the skills of the library staff, and provide additional avenues of contributions to librarianship, scholarship, and service for library faculty. Libraries desiring to increase their outreach efforts are encouraged to form similar groups.

Films and discussion on the Afghan resistance movement, education and communication in Australia, a travelog on Colombia, libraries and education in the People's Republic of China, and the Philippine educational system were all topics of programs featured by the University Library's International Affairs Committee during the past year. In addition to sponsoring programs, the committee has been occupied with a multitude of other activities through its four subcommittees: Afghanistan, International Students, Sister City, and Third World. The Afghan Subcommittee has been compiling an annotated bibliography of the Library's holdings on Afghanistan, perhaps the most extensive of any Afghan collection in the United States. It has also initiated an oral history project, conducting interviews with the many Afghan refugees residing in Omaha and with visiting Afghan scholars. The subcommittee will be participating in an effort to further expand and round out the content of the Library's Afghan collection as well.

The goal of the International Students Subcommittee has been to work toward the establishment of a physical facility to meet the social needs of foreign students. Since the University of Nebraska at Omaha (UNO) is an urban university without residence halls, foreign students can feel especially isolated and alone.

The Sister City Subcommittee, originally the Shizuoka Subcommittee, has as its goal implementation of regular channels of communication between UNO Library and the libraries of universities with which UNO has a sister university relationship. As you may know, many U.S. cities have a corresponding sister city in Japan, the purpose of the program being to foster good will and cultural exchanges between the United States and Japan on a local level. The University of Nebraska at Omaha has taken the concept a step further and established a sister relationship with Shizuoka University, the major university in Omaha's sister city, Shizuoka. Now UNO Library has brought the concept to the university library level with the formation of the Sister

City Subcommittee. To date the subcommittee has written a letter, in Japanese, to the library at Shizuoka University proposing mutual assistance in collecting materials about our respective cities and universities. Two books, Dorothy Dustin's Omaha and Douglas County; a Panoramic History and Roger Welsch's Omaha Myths and Trickster Tales , were sent with the letter. In response, the Library has received copies of the newspaper the Shizuoka Monthly , in English, and A Guide to Foreign Students Attending Shizuoka University , also in English, and an indication that a decision regarding our proposal must be made by committee, sometimes a lengthy process. The subcommittee also sponsored a reception last July for twenty-six visiting Shizuoka students and their chaperone. The students had come to UNO for a four week intensive English language course through the university's ILUNO (Intensive Language at the University of Nebraska at Omaha) program. The reception was a lot of fun and a great success. Several students later roomed with library staff, and correspondence still continues between at least one library employee and Shizuoka student. Although UNO is establishing sister university relationships with several other institutions including South China Normal University at Guangzhou and the University of the City of Manila, the subcommittee has not yet formally approached their libraries. We did receive an enthusiastic letter from the library at South China Normal in connection with our program on libraries and education in the People's Republic of China, an indication of possible future interaction.

The Third World Subcommittee more accurately could be called the Third World Studies Conference Subcommittee. Every year the Office of International Studies and Programs at UNO sponsors the Third World Studies Conference, and library staff have coordinated the exhibits, films, and microfilming of proceedings for the past two years. Library faculty also chaired panels and presented papers at these conferences. This February, on Valentine's Day, the director of International Studies and Programs presented the subcommittee with a plaque engraved with members' names in appreciation for their work on exhibits, films, and microfilming. He has been told that a plaque every year will guarantee library participation. Seriously, we hope to pass around this service opportunity among our membership into the indefinite future. Word gets around and additional requests have surfaced; a director of the European Studies Conference, also sponsored by UNO, wistfully stated he wished the library could help with that conference also.

The Library International Affairs Committee was a year old January 18. How could a group of fifteen to twenty members become so diversified in its activities in such a short time? Some of the projects were already under way and were incorporated under the umbrella of the newly formed committee. A group of library staff had worked on the Third World Conference the previous year, and the Afghan bibliography was already in progress. When the library director received a request from staff who had assisted with the Third World Conference to form a permanent library Third World Conference Committee, he suggested forming a broader standing committee, the one in effect now, incorporating the international projects and interests already existing. In addition to the activites already in progress, the library also had many staff with an international orientation. Two library faculty had spouses from other countries, one was a former Peace Corps volunteer, and two held degrees in international affairs or area studies. There were also an Afghan refugee and many foreign student workers on the staff. It seemed the library could support a standing committee with an international focus. Since founding the committee we have added as members some interested non-library staff including the university foreign student advisor, a research assistant in the Office of International Studies and Programs, one of the co-coordinators of the Third World Studies Conference, and the director of International Studies and Programs.

Establishing the International Affairs Committee has brought benefits to the library never anticipated when the concept of the committee first arose. I will not address the contributions to the university, but hope they are judged worthwhile. The committee has served to raise the visibility of the library and librarians, to broaden the skills of library staff, and to provide additional outlets for contributions to librarianship, scholarship, and service for library faculty concerned with reappointment, promotion and tenure.

"Contributions to Librarianship" is the term used at the University of Nebraska at Omaha for the work librarians do, equivalent to the teaching done by teaching faculty. The director of International Studies and Programs, who at first did not know librarians have faculty status (a common oversight among teaching faculty and other university professionals on all campuses), has moved swiftly to include UNO Library faculty in many professional activities. Through him library faculty on the committee have been invited to join the UNO Sister University Committee, the Omaha Sister City Association, and the Omaha Committee on Foreign Relations. The UNO Sister University Committee is comprised of UNO teaching faculty and professionals, while the Omaha Sister City Association's membership includes prominent members of the community from business, industry, and education. The third group, the Omaha Committee on Foreign Relations, is affiliated with the Council on Foreign Relations in New York, which publishes the well-known periodical Foreign Affairs . Again, its membership includes many community leaders. Such exposure can only help the cause of the library on campus and in the community. The International Studies and Programs director has also encouraged library faculty to present papers and chair panels at the Third World Studies Conference, and has included library faculty on the campus-wide Third World Studies Conference planning committee. Recently he invited one professional librarian to serve on the editorial board of a new journal on Afghanistan. As coordinator of the Fullbright program on campus, he has further urged librarians to apply for Fullbright grants to visit sister university libraries.

Library awareness is also being fostered through the programs sponsored by the International Affairs Committee. Although to date we have not publicized our events outside the library, we plan to do so by advertising in the university's weekly newsletter, and have recently appointed one of our members as public relations agent. We may also co-sponsor programs periodically with the University Library Friends. The Afghan bibliography and oral history project, and library orientation for international students and visitors are other activities which ultimately promote the library. As yet we do not have a formal orientation program for foreign students, but the idea has sparked some interest and eventually we may have sufficient staff and time to develop a program. Most of our doings serve to acquaint others with the University Library from the campus to the international level.

In-house the International Affairs Committee provides an opportunity for all library staff to become involved in activities other than the routine—as do other library standing committees. We also fill a type of staff development role, as anyone can have the opportunity to manage the exhibits, films or microfilming of proceedings of a conference with the advantage of guidance from those who have done so before. By participating in any of the subcommittees, an individual can learn much. The committee hopefully also serves to raise consciousness about the special needs of international students, making for better library service, and provides service opportunities for paraprofessional and clerical staff.

The third benefit related to the committee is the availability of additional routes for contributions to librarianship, scholarship, and service for library faculty. As mentioned earlier, librarians are encouraged to organize panels and present scholarly papers at the Third World Studies Conference. The conference aims to draw faculty, including librarians, from throughout the United States. At the 1982 conference, UNO Library faculty organized and chaired a panel, with librarians coming from Colorado State University, Kansas State University, and the University of Nebraska at Omaha to speak on resources for research and teaching on the Third World. Last year a library faculty member from the University of Nebraska at Lincoln presented a paper on business reference sources for Third World studies, and again a UNO Library faculty member chaired a panel. The Association of College and Research Libraries Bibliographic Instruction Liaison project is working towards librarian participation in non-library conferences; at the Third World Studies Conference we already have an open invitation. The Afghan bibliograpy, oral history project, and journal are other scholarly outlets of the committee. Contributions to librarianship and service possibilities are also evident in all of the foregoing discussion. In all three categories—contributions, scholarship, and service--the library faculty member has the opportunity to participate firsthand in one of the significant goals of the university—international relations.

Before concluding I want to talk briefly about the organization of the committee. Anyone can join any of the four subcommittees, and most committee members belong to at least two subcommittees. Each subcommittee chooses its own chair and has its own monthly meeting time. The committee as a whole also meets monthly, alternating programs with business meetings. Originally we scheduled a program followed by a business meeting each month, but found that most people could not leave their work stations for one and one-half to two hours at a time. Members take turns sponsoring the programs; we found this arrangement to be superior to requiring a program committee to plan programs every month. We also alternate taking the minutes, which are distributed to the membership and also kept in a binder accessible to all library staff. For maintaining membership lists we use an Apple IIe for easy updating. New library employees receive information about the committee and an invitation to join soon after they begin work. As we are still in the process of devising procedures that work best for us, six months from now this description may not be accurate.

In conclusion, one of the main goals of academic libraries is library outreach. This effort usually takes the form of providing tours and lectures for classes and serving on a few campus committees. The UNO International Affairs

Committee provides additional avenues of outreach, through service to university sponsored conferences and membership in community-wide organizations, to name only two. These avenues are also opportunities for contributions to librarianship, scholarship, and service for library faculty, and a chance for the entire library staff to learn new skills and participate in a significant university goal. Libraries striving to enhance their visibility and librarians seeking to increase their involvement outside the library walls might consider establishing a group such as UNO Library's International Affairs Committee.

THE GREAT PLAINS EXPERIENCE IN NORTHEAST NEBRASKA-AN ACADEMIC OUTREACH

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ABSTRACT

Six humanist scholars from Wayne State College presented the six Great Plains Experience films in four northeast Nebraska communities. Each humanist scholar presented a film, led a discussion, and gave a book talk. Presentations in each community were to high school students, senior citizens, and public library and county historical society patrons.

I. Background

Water rights, MX missile location, corporate ownership of farmland, depressed farm and cattle markets, and the quality of education are serious problems in this part of the Great Plains. They have their roots in the way some view the Great Plains. Many think the Great Plains is:

- a place to go through
- a Great American Desert
- a region ready to be exploited
- a region dominated by small town ideals and frontier mentality

and whose people have a preoccupation with bignessland holdings, steaks, and football crowds. Nebraskans haven't found a happy compromise between their culture and their environment. They seem to feel a part of yet apart from.

These problems should be attended to and studied in a way which will help Nebraskans develop an informed view of the future, based on an awareness of the region, not by adding more information, but by examining, discussing, and exploring the literary forms and historical records of the Great Plains. When northeast Nebraskans learn more about the land and people of the Great Plains

- how early Indian people, explorers, and settlers saw the region
- how the people adapted to the frontier
- how present life on the modern Great Plains continues to adapt to change

they will look at their problems with a better informed perspective.

Northeast Nebraska is on the eastern edge of the Great Plains and Wayne State College is near the center of Northeast Nebraska. The college's mission is to provide quality academic programs, to assist regional educational agencies, and to share its resources with the citizens of northeast Nebraska. In serving this region we have developed extensive resources:

+ state and federal depository collections
+ small business development center

and have provided a variety of services:

+ cataloged public library resources
+ introduced poets into the schools
+ provided Humanists scholars for community humanities projects.

From January - June, 1983, through NEH Planning Grant #GL-20217-83, we cooperatively planned with four public libraries an academic outreach program which would focus on the Great Plains. Columbus (population 17,300) and Norfolk (population 19,400) were selected to participate in this project because they provide reference and inter-library loan service to the other public libraries in the Northeast Nebraska Library System. Hartington (population 1,700) and Wayne (population 5,200) were selected because they are representative of the smaller libraries and have strong local commitment for their programming. All communities are recognized as economic and cultural county centers.

During the planning grant period we:

o conducted four community analyses to determine specific cultural needs which included focus interviews to determine the perceptions, attitudes and interests community leaders have about the Great Plains.

- established program attendance goals for each site and program;
- selected and trained the Humanist scholars to effectively conduct a mediated presentation, group discussion, and exhibit tour.
- expanded the Great Plains resources of Wayne State College's U.S. Conn Library by acquiring titles recommended by:
  - Center for Great Plains Studies, University of Nebraska/Lincoln
  - Great Plains Studies Program, Emporia State University, Emporia, Kansas
  - Nebraska Curriculum Development Center, University of Nebraska/Lincoln
- developed and produced annotated bibliographies for each of the Great Plains Experience titles and a series introduction;
- designed exhibits to complement each of the presentations;
- developed a marketing strategy to enroll community members, especially
  - + public library patrons

  - + county historical society members
  - + senior high school students and
  - + senior citizens

- o designed a GPE logo for publicity;
- o developed evaluative criteria and assessment procedures;
- o acquired a major northeast Nebraska Indian artifact collection;
- o designed a Great Plains Experience area in U.S. Conn Library to display and exhibit literature, historical artifacts, photos, and art unique to northeast Nebraska.

The acquisition in May, 1983, of the Fred Kind collection of more than 3,000 Indian artifacts found in Northeast Nebraska was a significant achievement for the college and one which directly complements this project. The collection will be prominently displayed in the planned Great Plains area of U.S. Conn Library. The first floor space allocated for this collection and other resources of the Great Plains - its art, photography, literature, historical records, and artifacts - is an ideal location for our cultural resources. The development of the Great Plains area is a direct outgrowth of our Planning Grant. It has been well received by the college administration and will allow us to continue an academic outreach to our regional institutions and constituents.

During the I Semester of the 1983-84 academic year, the Humanist scholars taught the University of Mid America's "The Great Plains Experience" through Wayne State's Extended Campus in Norfolk. By offering this course in a convenient location, we enrolled eight librarians and seven other interested community teachers and library patrons.

The film series "Great Plains Experience" was selected because it has received high audience participation and favorable reactions to its quality. Four of the films received awards from national film festivals and two won the coveted 1978 CINE Golden Eagle. These films were developed and produced by the University of Mid America, with NEH funding, and became the featured form of presentation in the highly successful "The Great Plains Experience: A Library Community Outreach Project", NEH Grant #PL-9289-81 which was conducted in eight major public libraries throughout the United States. The Great Plains Experience films are:

1) THE LAND - (29 minutes)
   This film focuses on the varied and changing perceptions of the Great Plains from the perspective of the people who have lived there, including the Indians, early explorers, and eastern emigrants, and contemporary residents. Novelist, historian and Pulitzer Prize-winner Wallace Stegner is host and narrator.

2) THE LAKOTA: ONE NATION ON THE PLAINS - (29 minutes)
Through a portrait of the Lakota Indian tribe, this film depicts Plains Indian life and cultural adaptation prior to extensive white contact in the 19th Century. N. Scott Momaday, poet, novelist and professor of literature at Stanford University, narrates the story. First-hand Indian accounts are limited to winter counts, some hide paintings, and oral traditions. The journals and paintings of such observers as George Catlin, Alfred Jacob Miller, Charles Russel, and Frederick Remington provide white records.

3) CLASH OF CULTURES - (28 minutes)
This film traces the history of the conflict between Plains Indians and settlers in the 19th Century that resulted in numerous military bat-les, including the dramatic defeat of General Custer's Seventh Cavalry at the Battle of Little Big Horn. Four elders from the Lakota tribe recall the oral tradition of Indian life in the late 19th Century and explain the cultural attitudes of the Indians.

4) THE SETTLING OF THE PLAINS - (28 minutes)
The letters of Flora Hunter, with particular reference to Custer County, Nebraska 1870-1895, and thousands of photographs in the Solomon D. Butcher Collection document the experience of pioneers who settled in the Great Plains as a result of the Homestead Act of 1862. There is no narrator, but a number of voices read original documents illustrating the optimism, loneliness, hard times, and ultimate survival of the settlers on the harsh land.

5) HEIRS TO NO MAN'S LAND - (29 minutes)
"No Man's Land" is what Oklahomans call the Oklahoma Panhandle. The film opens in the midst of the affluent, technological present and, through interviews with local residents goes back in time to the '20s and '30s. Families recall the boom times of the Roaring Twenties and then describe the drought and depression of the Dust Bowl years. Authentic newsreel footage, photographs, and old records convey both the feel and sound of the period.

6) FOUR PORTRAITS - (28 minutes)
The last film examines the diversity and complexity of modern Plains life by looking at the lifestyles of a Montana cattle rancher, a Kansas farm family, a Lakota Indian artist, and a Texas mayor. The unscripted documentary is a departure in style and approach from the preceding five films as the four subjects personalize their experiences of living on the Plains today.

Since the Library Community Outreach Project was conducted in only four communities of the Great Plains, and three of these may be marginal - Wichita, Sheridan, and Great Falls, we felt that the series should be tried in Nebraska as an academic outreach of a Great Plains college through Great Plains public libraries. We have capitalized on that notion.

II. General Design

Through the Great Plains Experience in Northeast Nebraska Implementation Grant Wayne State College provided human and material resources to enhance public library programming with selected audiences and hopefully created sustained interest in the Great Plains literary forms and historical records.

Through community analyses of the four communities it was found that the committees and interview groups had strong positive feelings about their communities. A sense of pride exists in all. They easily identified the major cultural agencies, events, and lifestyles. However, determining cultural level was difficult and therefore somewhat avoided.

Columbus "boasted of its vital cultural life", Norfolk identified many active cultural agencies, Hartington especially recognized its county historical society, and Wayne noted a wide variety of cultural opportunities. In Columbus and Norfolk the omission of the historical societies role and activities would seem to indicate a need for the Great Plains Experience. Some felt, too, that they had been negligent in recording the past and they viewed the Great Plains Experience as a way to create an awareness of their history.

Opportunities to attend lectures, visit museums, attend the theatre or concert are lacking in these communities. Some felt that because their parents had to work hard and lacked money a viable cultural environment did not develop. All seemed to agree that the public library should be a relatively important cultural agency offering more than books to borrow or a place to get information. It should provide these services as well as space for meetings, exhibits, film showings, and a place just to visit.

We believe the Great Plains Experience in Northeast Nebraska gave each public library an assist in that direction through the fourteen week programming of film, discussion, and exhibit.

Each Wayne State College Humanist scholar conducted twelve ninety-minute programs in the cooperating senior high schools, senior citizen centers, and the public libraries - three programs at each site. They introduced showed, and discussed the film, distributed and commented on their program statement, commented on the recommended books, and evaluated the program. Each program contained sufficient time and resources to stimulate thought, discussion, and further reading on the Great Plains. Programs were presented bi-monthly during February, March, and April, 1984.

So that participants could readily understand the program content each Humanist scholar developed a learning strategy which recommended the library's resources suitable for adults.

We also videotaped each Humanist scholar's complete presentation for critique purposes and for supplementary programming in the public libraries.

In mid-January a three day training pre-program institute for the six Humanist scholars and the eleven public library staff members (Columbus-4, Hartington-2, Norfolk-3, Wayne-2) was held to orient and motivate the project staff. Project goals, schedule, use of resources and procedures were presented and established. The project staff learned how to develop and conduct a research strategy, how to locate and use Great Plains literary and historical resources, and how to become familiar with the region's major historical and literary centers - U.S. Conn Library Wayne State College, John G. Neihardt Center, Winnebago Indian Community College, Nebraska State Historical Society, and the Center for Great Plains Studies, University of Nebraska at Lincoln. Selected speakers highlighted several aspects of how we can make the project a successful academic outreach.

During the project a Steering Committee composed of the Project Director, the six Humanist scholars and the four public library directors guided the project to a successful completion.

III. Humanistic Content

Citizens of the four communities expressed a need for greater understanding of the Great Plains. They feel:

- guilty about the Indian and his way of life
- badly about the failed Indian culture
- negligent in not documenting their past
- neglected in literature and history

+ good about living in the Plains.

They believe that:

- we've forgotten the hardships experienced by the settlers
- the settlers suffered financially and culturally in their search for freedom
- some communities lack an interest in historical museums
- the Plains are not significant in the scheme of things
- there is an ambiguity with the image of the Great Plains

And some want to:

+ develop a stronger ethnic heritage

+ promote interest in community history

+ assimilate newcomers into the various ethnic groups

+ balance the population with the land

+ revitalize a pride in the Plain's contribution to the American spirit.

One of the project's goals was to create and sustain an interest in the Great Plains literary forms and historical records. Viewing the six Great Plains Experience films, discussing them with humanist scholars who have the appropriate historical and literary expertise, looking through and studying exhibits, and reading books and journals about the Great Plains should advance the participant's understanding of the Great Plains.

THE INTEGRATED LIBRARY SYSTEM IN CONTEXT

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ABSTRACT

The actions leading up to and following installation of a computerized library system often define its success or failure. When the system is planned to integrate several different library functions, care must be taken to make sure that all important factors are considered. Explicit and implicit assumptions for a computerized system are considered. The environment for integrated library systems in the state are examined and four approaches to implementing the system are given.

Introduction

There's been a lot of talk about integrated library systems in the last year. The major reason, I think, that this has been on everyone's mind is that there are a lot of computer salesmen out there who wish to sell a lot of computers. Perhaps the very first thing that we as librarians need to do is distinguish between an integrated library system and a computerized library function.

Frederick Kilgour has said quite forthrightly that the online catalog is far more important than mere improvements in efficiency caused by computerizing certain functions in the library on one computer. Like it or not, therefore, we must conclude that merely computerizing library functions is old hat and that the wave of the future with which we all must contend is the integrated library system offering information access to anyone, anywhere, and at any time.

The Online Catalog

Most of us, if not all of us, are presently using some computerized functions in our library. Usually that will be either the circulation system, the cataloging system, or the computerized databases for periodical references. We must reconcile ourselves with the fact that these computerized systems are going to be more expensive year by year while creating increased expectations on the part of both patrons and also administrators of what the library can do and at what cost.

Another common understanding which we must establish is that the online catalog is a useful and needed service for patrons of the library. This is indeed the decade of personal computing. Most of us have had experience with personal computers and most of us have witnessed the agony of our campus computer networks as they strive to provide greater amounts of computing power to students. It is both logical and proper that not only we librarians, but also our patrons question when and how we will provide online access to the monographic collections in our library rather than whether or not we can do it.

First, let me say that you must keep in mind this central objective. The online catalog, within the integrated library system, provides access to the collection via computer. The integrated library system assumes that there will be savings of both staff and patron time by having all the different computerized bibliographic functions available with the same protocols, the same operations, and the same understandings. Secondly, I will caution you against all the bells and whistles which will deter you from the main objective. It is a strange situation to find yourself at an exhibitor's booth discussing the relative merits of the plasma touch screen terminal versus the merits of the dial up personal computer. No doubt there are some valuable enhancements, but they should come at the end of the process as an additional benefit rather than as a rationale for the project.

Finally, by way of introduction, there is only the remaining act of getting down to business and making the decision to install an integrated library system. The purpose of this paper is to bring to mind some of the conditions for making the installation and operation of the system a smooth one.

Explicit Procedures

The first introduction which most of us have to the integrated library system is from a vendor, or the customer of a vendor, who begins immediately speaking in tongues. They talk of the LS2000, the DG230, the VTLS, et cetera ad nauseum. They're really speaking of the most implicit of all the parts of an ILS installation: hardware and software. We must understand that hardware (the computers and auxilary devices) is where the vendors make money. Vendors are not usually librarians, but they have acquired a license for selling hardware by acquiring software which some librarians or groups of librarians have developed. So the last thing which we must know is how well the hardware and software work individually and whether they work together; that is, what operating system joins the two. I won't go into the different hardware, software, and operating systems in this talk; however, I reserve the right to say harsh things about them.

Hearing about the integrated library system from other librarians via a formal paper or address, we are likely to hear that the first step in the process is not picking equipment, but rather the needs survey. Many large libraries which have installed circulation systems have undertaken the needs survey to provide the rationale for automating a function rather than installing an integrated system. The second step is for a specifications list to be drawn up. For this there are workshops on preparing specifications for computerized library systems as well as several documents for sale which will give a good introduction in this rather trying science. I remember being warned very explicitly in one such workshop to always include a magic sentence in any contract, that "the specifications attached to this request for proposal are part of the legal contract," as if that would magically end your problems.

The third step is when we begin to feel more comfortable: the request for a proposal or RFP. Now we are telling what we want in terms in which we understand. We can use elaborate phraseology to make our needs known to any simple minded vendor. We can make emotional appeals for greater service, longer hours, and better societies through this document; however, the end result must be something which our administrators will consider necessary and the vendors will interpret to mean computerized systems which only they can provide.

The fourth and last step in this explicit portion of our process is the evaluation of the bids received from the vendors. One librarian divides the process into both a technical evaluation and a financial one, and I think this is good advice. The vendor says, "I can do this technically now, not in the future, but now financially you must commit to this level of support." The University of Maryland System team even drew out a seven year chart and asked the vendor to say what it would cost in each of those seven years to run the system.

Implicit Assumptions

Now we come to the more difficult processes because they are not always seen and appreciated by those considering an integrated library system. The first of these is personnel. Very little can replace experience with a computer system and knowing how many staff members will be necessary to operate the system. Site visits, discussion with members of the computer network, and numerous private conversations are necessary to really understand the impact on your staffing situation of a computer system. When a group of us addressed the impact question to Hank Epstein, his reply was, "The impact on your personnel will be some resignations and a couple of divorces."

The second area is money. Now you may wonder why I make it an implicit assumption when I've already discussed the financial evaluation of the system as an important explicit assumption. The reason is that it always takes more money than the amount for which you planned. We would like to think that we planned conservatively. This may be true, but just as with our national deficit this seems to be a bipartisan failure. Both conservatives and liberals spend more money than they had intended. You must figure on additional monetary requirements beyond the anticipated ones.

Paperwork is the third implicit requirement. There are going to be forms, log sheets, rosters, printouts, parameters, reports, contracts, and very possibly lawsuits. We all live with paperwork, but we speak of reducing it. We are computerizing library functions, not office functions, and therefore we are merely adding new requirements to our existing bureaucracy and we can expect an increase in our paperwork.

The fourth requirement is a time frame. We all have a time frame, but it never ceases to amaze me how two people who work closely together, who understand each other, who may see each other socially, who consider themselves friends, and who are on the same wave length on purchasing an integrated library system can have two entirely different time frames in mind at the same time and consider the other persons' to be unrealistic!

For purposes of illustration, you need only ask the vendor when you can get the system, whatever system you may be talking about. The vendor's answer is likely to be the absolute minimum time during which the system could possibly be installed with every imaginable thing going smoothly. Perhaps to get the absolute maximum time for how long the system will take, you need only ask one of the students at the card catalog. Go up to a student and say, "How long do you think it will be before this university gets some simple computerized access to the books in this library?" The answer may be five years, or ten years, or "not in my lifetime," and then you've probably got a workable range for your exercise. You must still determine a time frame, make it explicit and alter it to be longer and longer as you gather more information. I urge you not to proceed with your fellows without this implicit understanding made explicit between you.

The fifth implicit assumption which we need to examine is that of retrospective conversion. Often just called conversion, this is the process for putting your library records into machine readable form. This process is easily overlooked by public services people. We must realize that this will take time and money and staff and administration having the same assumptions. The time frame for conversion must be considered to be as important as the time frame for installing the equipment, the time frame for making the money available, and the time frame for completing the paperwork. If you do not have a database to run with the software, your system will be a sad one.

A sixth assumption is that of maintenance and site preparation. These two terms are well known to your computer network directors. That is, they don't have enough personnel to do maintenance and they don't have enough money to have a decent site prepared. When you approach them with the idea of a computerized integrated library system, they may just see the answers to both of their own money problems appearing as if from heaven. It is not unusual for site preparation to cost over $10,000 just to provide a homey atmosphere for a computer, nor is it unusual for the maintenance on a computer to run higher than the salary of a new professional librarian each year. These are real costs, recurring costs, and they must be calculated into the system.

The seventh assumption is telecommunications. It's best to hire wizards for this job or to avoid telecommunications altogether. Unfortunately, both are hard to do and we must reconcile ourselves to long struggles with telecommunications equipment when we get an on-line catalog.

The last of these implicit assumptions is environment. This is no less important than the preceeding assumptions, but it is one which many of us tend to neglect, thinking instead that we are islands in our library fortresses.

Before I address this segment, I would like to alert you to an occasional phenomenon. That is that the explicit assumptions are sometimes the implicit ones and vice versa. This usually happens when you are approached in a social situation and offered a computer by your friendly network director. Be aware that he is likely to immediately make explicit such items as personnel, money, time frame, and maintenance, and leave implicit the questions of need, process, specifications, database, etc. When the inversion phenomenon occurs, it can usually be quickly countered by saying to your computer network director, "You realize, of course, that we're talking about over 500,000 records each with over 1,000 alpha numeric characters in variable length fields?"

The Nebraska Integrated Library System Environment

It is with the environment that we see our system in a broader context. We will speak here of our immediate environment being our particular campus and library. The broader environment is the community within which we live and operate our libraries and also it is the community of libraries in Nebraska. The broadest context is the statewide society's influences on the library.

The first aspect of environment is the existing automation. Within the university, this may be the type of computers already being operated by the network. It may be the amount of funding committed by the university to upgrading its students' computer literacy in the coming years. It certainly is the amount of administrative committment to the library. Outside of the immediate community, the existing automation of similar libraries in Nebraska and indeed in the country are worthy of consideration. Is there an operating system doing the things which you want to do in a library with your approximate conditions somewhere else in the country? If you can answer affirmatively to that, then your situation will be much, much easier in the months to come. Is there existing automation of a different sort in libraries surrounding you? Surely if we go back to our first principal of providing online access to our catalog, we can see the worth of providing that same access which we provide patrons to our fellow librarians in libraries with whom we already have close relations.

The plans for automation by the library are another environmental concern. Is your administration aware of your future plans to automate and indeed to integrate your computerized systems? If they are, do they share the same assumptions which we discussed earlier? If not, there's a long road ahead. If they do share those assumptions, then having a shoulder in the administration on which to lean will prove valuable on those gray days when things aren't going right.

Plans for automation by other libraries are no less important. Many of us are watching with great interest as Lincoln City Public Library and Omaha Public Library attempt to acquire the same system for their two libraries to ensure some level of compatibility. This occurrance means that at least they will share common problems, concerns, and headaches with a sympathetic ear. At best, it means that they can work toward cooperative solutions to common problems.

At worst . . . consult Jay Starratt's paper on sharing a computer.

The organizational influences on the library are no less important than our planning. It is a common feeling among departmental supervisors that regardless of how poorly the computerization of their functions is proceeding, they do not wish to give up what little they have. When proposing an integrated system, each of the different existing automated functions has to be rationalized within the larger system. Each must be evaluated by the cost, its importance to the library, and its priority in the list of needs. This can be an extremely trying time for one wishing to install an integrated system. Because it takes time to explain, answer questions, and develop a rationale, the effect is to change timetables and costs and functions which were previously outlined.

The influence of the university departments are no less significant. You must tread carefully around the computer networks' turf. There will be the competing department whose need for computer equipment must be made secondary to that of the library. There will be competition. These organizational influences can extend themselves statewide. In a "package" of computers to be spread among several campuses or several libraries under the same governing board, the case made by the library must be an extremely strong one so that it can stand both in its campus environment and in a statewide environment.

The statewide influences on the library are extensive. First, there's the obvious one of the power of the purse. We are all dependent on the state legislature and we dare not put ourselves and our campuses in the position of pointing out that the legislature is making a mistake in our particular case. We are interdependent with the Nebraska Library Commission. We provide services to constituents throughout the state, but few of us would say that we are properly recognized for our services. However, if the state decides to proceed with a consistant approach to automation, then the effects in two or three or five years on our own library situation could be dramatic ones. If nothing else, we will want to meld with the states' plans in order to benefit from the grants and contracts and consultants which the commission will utilize in accomplishing statewide goals.

Approaches to Implementing An Integrated Library System

The approaches which I wish to discuss are those which I think realistically face each of us in Nebraska. For that reason, I have not included the possibility of in-house development, nor have I given very much attention to having extensive modifications made on any system by in-house programmers. I believe that if you have one of these two opportunities, you are an exception rather than a rule in our state. I wish also to discuss not only four approaches to implementation but also three aspects to operation of the system which must always be kept in mind.

I'll take the three aspects first and those are: labor, capital, and time. That's an easy way of saying all the preconditions and assumptions and postconditions which I've discussed earlier boil down to one of these three areas. Once you know in your bones that you will constantly be assaulted by requirements of one of these three aspects, labor, capital, and time, then you are ready to implement an integrated library system.

The first approach to a system is a functional expansion approach. This approach takes a system providing service to the library in one functional area and expands it to include other functions and an online catalog. This approach, I think, will be a common one in years to come. A good vendor of, for example, a circulation system, is already thinking of ways to provide more service for more money to your library. I count, under this definition, not only circulation vendors but also acquisitions system vendors, cataloging system vendors, and even the vendor who provides you with books, office equipment, and library supplies.

These vendors also may use the inversion principle since you're already familiar with them, and you know the things they don't put in their brochures. They may feel that you will opt for the devil that you know rather than attempt the realistic, but devilish steps, of examining your needs, preparing your documentation, rallying your support, and approaching the acquisition of an integrated system in a more rational manner. If, however, you can do these things and still find that functional expansion of the current system is possible, you may be pleasantly surprised at the possibilities of cost savings and cooperation with a vendor. One word of caution; however. It will be their timeline which will dictate your progress toward a system and not your own.

The turn key system is not so automatic as it sounds. I put in this catagory those vendors who wish to make a lot of money by selling you hardware and often scramble to get a software package to put on it. These are advertised for sale as integrated systems whether or not the features exist today and whether or not you can find all the functions which you desire. These would include the Virginia Tech Library System which matches the Hewlett-Packard equipment and the BLISS and NOTIS Systems, both of which go on the IBM Computer, and the LS2000 System marketed by OCLC for the Data General equipment. Regardless of whether these systems meet your need, your approach to them is not likely to be a straight, head on, "here's the money, give me the system" approach.

It is likely to be a partial approach whereby your library acquires hardware by any of the devious and strange ways for which we all have examples and you wish to acquire software from the vendor. Or perhaps the vendor has the hardware which you want and you have obtained software which you believe can run on the vendor's hardware.

It is the turn key system which requires the most straightforward and formal approach to documenting every assumption, every expectation, and every requirement possible. This is a case where you will be responsible for the expenditures of several hundreds of thousands of dollars before the end of the project. You will want to make sure that you have as extensive a paper trail as possible not only for your protection should that become necessary, but also to maximize the level of service which you are giving to your library and patrons.

The third method of implementation is one which will take extensive discussion and cooperation to achieve. This is the network approach to acquiring an integrated system and it can only come about where there is a statewide body for its support. Two years ago at these Spring College and University Section Meetings, we heard of such an approach being attempted by Missouri. A year ago I visited Kansas City and learned that it would take a minimum of three years running the system in-house in technical services, building the database, and testing the online catalog both with staff and with patrons before the network would attempt to make it available statewide. Yet the returns to the public in terms of service are very, very large indeed. This is the closest to the dream of widespread instantaneous access to our collections that we have come. We must look to our state library agency, our university system, and our major public and special libraries to achieve this goal because it will take resources beyond those of any one of us to accomplish such a system.

The final method and the final portion of my paper deals with a system implemented using no rationale at all. "It looked good and the time was right and we went for it." Some of us are going to fall victim to this approach. It will drain away our labor, capital, and opportunity. It's only through careful attention to many of the assumptions and environmental factors which I have discussed that we can avoid this worst of all possible fates.

SCENES FROM THE REFERENCE DESK: A SOCIAL INTERACTIONIST ACCOUNT

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ABSTRACT

The reference interview is examined under the lens of microsociological theory. Borrowing tools from interactionist Erving Goffman, the paper depicts the implicit social rules which underlie librarian-patron encounters. The model utilizes both dramaturgical and game-playing constructs, as well as Goffman's notions of impression management, face-work, and maintenance of the front. Among the questions addressed are these: How do stage settings and props color professional performances? What rituals shape the initiation and termination of the interchange? What strategies are used to negotiate the reference event? Additional avenues for future research are suggested.

For at least one hundred years, librarians have been writing about the process we have come to call reference service. Just what happens, or what should happen, when a patron meets a librarian over a bit of bibliographic business seems to be the subject of constant scrutiny and interpretation. This is not so surprising, since to the degree that we see ourselves as a service profession, this patron-librarian encounter is central to our work and to our occupational self-image.

In recent years, concepts borrowed from the social sciences have been applied with varying degrees of success in the library literature. Communications theory, non-verbal behavior, and social psychological models of various stripes have been called upon to elucidate the reference interview. On the premise that one more perspective can never hurt, this paper will look for guidance to the social interactionist analysis of sociologist Erving Goffman

A prolific and somewhat controversial figure, Goffman is not unknown to the library world He has been briefly cited by many writers and quoted at some length in William Katz' standard text on reference work.[1] One of the appeals of Goffman's work is that his analysis focuses on the routine interactions among unacquainted persons in public places. In the preface to his Relations in Public Goffman describes the object of his inquiry this way:

> The dealings that any set of actors routinely have with one another...seem universally to become subject to ground rules of a restrictive and enabling kind. When persons engage in regulated dealings with each other, they come to employ social routines or practices, namely, patterned adaptations to the rules--including conformances, bypassings, secret deviations, excusable infractions, flagrant violations, and the like. These variously functioning patterns of actual behavior, these routines associated with ground rules, together constitute what might be called a "social order."[2]

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1. William A. Katz, Introduction to Reference Work, Vol. 2.

2. Erving Goffman, Relations in Public: Microstudies of the Social Order p. x.

The library reference desk would seem to be a setting eminently suited to this investigation of the orderliness of social interaction. What follows, then, will include a cursory introduction to some relevant facets of Goffman's sociology, and an exploratory look at reference desk behavior through the microscope of social interactionism.

THE INTERACTIONIST MODEL

Goffman's best known work is probably The Presentation of Self in Everyday Life, in which he first described fully what is called the dramaturgical approach to social interation. Within this model individuals are conceived as actors portraying characters, and social life is seen as a series of performances. Meaning is conveyed to an audience (other social interactants) through the conscious and unconscious selection of words, gestures, and behavior. The dramatic metaphor is especially conducive to the study of work situations, and examples are often drawn from the retail and service settings where there is a fairly clear division between the performers (employees) and the audience (customers).

Performances must be understood in their physical contexts. Goffman uses the term "front" to include not only the setting--furniture, layout, decor--but also the appearance and mannerisms maintained by the actors. There is sometimes a physical barrier dividing the "front region," where the action takes place, and the "back region," or back-stage area. As in the theater, it is expected that the audience will not enter the back region, and that different standards of decorum will be in effect there.

When several people must cooperate to give a joint performance, they are referred to as a team. Team members exist in a special kind of mutual dependency, and become accomplices in the maintenance of a given front. The term "impression management" is used to refer to the techniques actors use to dramatize their role, avoid disruptions of the front, and reconstitute the performance when an incident occurs.

Some critics argue that Goffman's dramaturgical perspective is unrealistic--too much filled with contrivance and artifice. His contention, however, is not that most behavior is insincere, but that even sincere behavior is to some extent stage-managed. Goffman offers this defense against the alleged gulf between drama and real life:

> It does take deep skill, long training, and psychological capacity to become a good stage actor. But this fact should not blind us to another one: that almost anyone can quickly learn a script well enough to give a charitable audience some sense of realness in what is being contrived before them. And it seems that this is so because ordinary social intercourse is itself put together as a scene is put together; by the exchange of dramatically inflated actions, counteractions, and terminating replies. Scripts, even in the hands of unpracticed players can come to life because life itself is a dramatically enacted thing.3

While the dramaturgical model provides a useful approach to the scene by scene description of social life, it sometimes exaggerates the distinction between performers and audience. In his later work, Goffman has turned to increasingly smaller units of

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3. Erving Goffman, The Presentation of Self in Everyday Life, p. 71-72.

interaction, in which all participants can be seen as giving and receiving performances simultaneously. Often this work is couched in the language of game-playing. Players take lines, make moves and counter-moves, plan strategies, and win points. A final theme in Goffman's analysis is that of ritual. He argues that through our habitual rule-governed exchanges, such as greetings, handshakes, apologies, and farewells, we not only facilitate the business at hand, but constantly confirm the sacredness of our fellows and the social order.

An example of the use of both games and rituals is provided by the essay "On Face-Work: an Analysis of Ritual Elements in Social Interaction." Here Goffman argues that in any social encounter an individual will express a certain view of the situation and a related evaluation of himself and others. "Face" refers to the positive social value the individual claims for himself and the emotions generated by that claim. The person will feel comfortable as long as he is "in face," but will feel distress if he is "out of face." One will also feel uncomfortable, empathetically, when another interactant is out of face. "The combined effect of the rule of self-respect and the rule of considerateness is that the person tends to conduct himself during an encounter so as to maintain both his own face and the face of other participants."[4] Space does not permit a full recounting of the actions Goffman counts as face-work. The principle, however, that interactants negotiate and cooperate to maintain face will prove useful in the examination of encounters at the reference desk.

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[4] Erving Goffman, "On Face-Work," in Interaction Ritual, p. 11.

THE LIBRARY--SETTING THE STAGE

To apply the dramaturgical perspective to the library, we need first to consider the setting of the stage. Goffman suggests that having control over the set gives one some control over the performance. We should look, then, at how our organization of the reference space affects these interactions.

Nearly all academic libraries set aside a special area for the reference collection, and usually a staff member is stationed behind some kind of immovable desk or counter. This arrangement creates an implicit requirement that the patron seek out the librarian, rather than the other way around. Yet the avenue of approach is quite direct, requiring neither the intercession of a secretary nor the making of an appointment.

In some libraries the desk is modest in size and more or less exposed in a fully public area. All the action around it can be thought of as front-region activity. In larger libraries, on the other hand, the reference people may be enclosed behind some large formidable barrier. This establishes a protected, semi-private area available only to staff members. Since activity behind this desk is partially visible and audible to the public, it is not true back-stage space. Yet it does allow for discreet consultation and an occasional relaxation of the front.

We often talk about how exhausting public service work can be, and how it is best to schedule short shifts of duty. At least part of this reference fatigue can be accounted for by the need to be constantly in face--to be continually dramatizing the correct professional role.

Performances are colored by two other aspects of the setting, decor and demeanor. Some libraries affect a homey atmosphere--cushioned chairs, plush carpets, green plants, and cheery colors. Other institutions adhere to the traditional polished oak and marble image, featuring austere furnishings, high ceilings, and intimidating architecture. The librarian who wants to project a friendly, accessible persona will have a harder time realizing this performance in the latter kind of setting.

The reference books themselves might be considered part of the decor, and certainly they are important props in the scene. Some of these tools may be secluded in a private area, so that only the librarians have direct access to them. Sequestering the reference books has a double-edged effect. It makes the props seem valuable and important, and gives the librarians more control over the action. But it also forces the staff to spend more time in the performance of fetch and carry or check-in/check-out tasks.

Rules for the physical appearance of librarians are usually not explicitly stated. In academic settings particularly, quite a wide variation in habits of dress and grooming can be observed. Yet many librarians feel an obligation to dress up for public contact. This may reflect a simple desire to "dress for success," but it also serves to help identify the librarians to the patrons. Different styles of dress may also distinguish the librarians from other members of the library staff. While name tags could accomplish the same result, these seem rarely to be used.

That there are special standards of library decorum is a persistant cliche, but an accurate one. Some reference people will be genial and talkative, while others will be reserved and haughty. But none of them is likely to be found smoking at the desk, whistling at a passing patron, or tap dancing in the aisles. One reads, in fact, of libraries that stage special events, such as a day when the staff all wear funny hats, in a deliberate attempt to loosen up library decorum. The fact that these events are newsworthy and amusing testifies to the solidity of the traditional image.

THE LIBRARY--THE CAST

We may now turn from the setting of the stage to the cast of characters. Following Goffman's model, we expect that actors will fulfill their personal character requirements while also presenting a professional image in keeping with the agreed upon front. Allowing for individual differences, can we identify some basic, commonly recognized role requirements? We do expect, for instance, that librarians will be polite, sober, and fairly sensible, and we expect them to take seriously any patron who approaches them. This applies, of course, only if that individual meets the minimum requirements of the proper patron role. People wearing gorilla suits or those who are obviously intoxicated need not be given our full professional attention, for they have breached a ground rule of library interaction. The handling of the "problem patron" requires a revised version of the front, and some libraries see the need to offer special workshops on this very issue.

It is also safe to say that all reference librarians see themselves as being available to offer assistance on library matters. They are placed out front largely for the purpose of answering questions and offering help. The precise range of acceptable questions is, of course, subject to interpretation. The most telling facet of the librarian's role is, perhaps, this obligation to appear knowledgeable--the need to keep coming up with answers to all those questions.

But these are the impressions of an insider, a member of the team. How the public perceives the librarian's role may be quite another thing. Our audience may believe that we are out there to guard the books, to maintain order, or to change the paper in the copy machine. Yet most patrons would probably also expect the librarian to be knowledgable and willing to answer questions. That they sometimes ask one question when they really intend another may indicate that they too are confused about which kind of queries are considered appropriate.

THE REFERENCE INTERACTION

We will now attempt to follow a hypothetical paton through several stages of a reference event. For this exercise, it is assumed that the librarian is female, and the patron male, and that only one person is staffing the desk. Alternative combinations of gender and number would certainly influence interaction patterns.

As noted before, the interaction will generally be initiated by the patron. His first task, once a need has been recognized, is to case the library and find someone to consult. In one view, the librarian may seem like the obvious choice. After all, she looks like a professional and is stationed behind some kind of service desk. On the other hand, the patron may see other employees (perhaps less authoritative looking ones) filing cards in the catalog or shelving books. Some patrons prefer to ask these other staff members for assistance. Why this is so and how it is handled are valid questions, but outside the scope of this example.

Once the librarian has been identified as a likely target, the patron must make an approach. If not immediately acknowledged he will take steps to gain the librarian's attention. He may move closer to the desk, lean on it, put his notebook on it, or even knock on it. He may also resort to the standard oral cues such as clearing the throat or saying "excuse me."

The patron may find that the librarian is involved in another transaction, either on the phone or in person. If several patrons are waiting around the desk, they will likely behave toward one another with what Goffman calls civil inattention. There may also be a little waltz of adjustment going on, as they attempt to position themselves advantageously in the librarian's line of sight.

Rarely do we employ an organized system for queuing at the reference desk. The rules are roughly first come, first served, but this is not rigorously enforced. Patrons may negotiate for an exemption from the rule, as in "I just need to know where the telephones are." Occaisionally a patron will voluntarily surrender his turn, because he thinks he has a difficult question, or perhaps because he wishes not to be overheard. Compared to the regulated order of a bakery or a dentist's office, turn-taking at the reference desk is fairly loose and allows for initiative on the part of the patron. Librarians too can alter the order of processing requests. But as in other settings, any flagrant violation of the first come, first served rule will put one or more participants out of face, and may undermine the rest of the interaction.

Before proceeding further, consider briefly what happens when the librarian is at the desk and no patrons are at hand. To just sit and stare into space does not contribute to a well-managed professional performance, and may suggest that some salary money is being squandered. To be engrossed in paper work, on the other hand, can make one less alert and even discourage patrons from approaching the desk. A typical compromise is to appear slightly occupied with some worthwhile pursuit while still keeping one eye out for potential customers. Most reference services do not encourage the librarian to roam around the reading room, although this might be an effective way of making contacts.

Back to our customer, who has by now at least achieved eye contact with the librarian, if not some more overt sign of acknowledgement. Who will make the first move? Some patrons will wait until the librarian gives them a cue. At other times, the patron will speak first. In either case there may or may not be a ritual exchange of greetings preceding the real business at hand. The presence or absence of these greetings probably has something to say about how that interaction will proceed, and how the patron views the librarian. Consider that one can, without fear of appearing terribly rude, walk up to a clerk in the supermarket and ask directly, "Where are the paper towels?" But by contrast, most people would not walk into the doctor's office and immediately say, "What's this rash on my arm?" The different rules which pertain have something to do with the expected duration of the exchange, but they may also reflect the perceived social status of the service person.

It is interesting to note the form that ritual opening moves in the library often take. Rarely do we hear the usual pleasantries such as "Hi, how are you" or "Nice weather today, Hmmm?" Instead, our patrons say things like "Can I ask you a question?" or "Hi, I think I need some information" or "Well, yes, maybe you can help me." It seems that their opening lines serve to verify the librarian's willingness or ability to answer questions. Some patrons feel the need to make excuses for their ignorance. They say "I've never been in here before," or "I'm lost," or "Gosh, I haven't been in a library for fifteen years!" Having established this, they may then feel that it's okay to ask what may be a "stupid question."

With ritual exchanges either accomplished or omitted, the patron will now state some kind of question. The librarian has likely sized up the individual, ascertained sex and approximate age, and perhaps formed some impression of his level of education, degree of self-confidence, and social status. Upon hearing the initial query, the librarian may understand it, not understand it, or misunderstand it. She may or may not have a ready response, and this may or may not be an appropriate one.

Once the patron has made his move (stated the question), the librarian's counter-move may take many forms. She will, in other words, have a repertoire of possible strategies for handling the request. These are performance strategies used to negotiate the interaction, not to be confused with "search strategies" used to address the content of the question. Listed below are some of the more commonly observed techniques employed by the reference staff.

Eureka, I've Got It! The librarian knows the solution to the question, or a plausible way of finding it. She can proceed directly to the next phase of interaction, transfering the patron to the source of information.

Run That By Me Again, Please? The simplest form of question negotiation is a request for repetition. This move is used when the query was not heard clearly, but it can also be used to fish for more clues or to stall for time. Repetition cannot be requested too many times in one conversation without causing some socail distress, for after a while it begins to imply some gross failure of communication on the part of one or more interactants.

Who, What, When, Where, How Much? When the librarian can't answer the question as stated, she may ask for clarification or further information. This can be a tricky business, for a clumsy question can reveal gaping ignorance. Open-ended questions are often recommended to "draw the patron out." If the client's information need is too personal or somehow discrediting, he may be offended by this questioning. If his offense shows, the librarian will be embarassed, and the interaction disturbed. With some luck, however, a period of clarification leads back to Eureka, I've Got It or some other useful strategy.

Have You Tried Psychological Abstracts Yet? This type of question implies that the patron's query is understood and answerable. The strategy is simply to narrow down the possible field of sources. This move also can be used to glean information about the patron's level of expertise and bibliographic sophistication.

I'm Sorry, You'll Have to Go to the Law Library. Otherwise known as referral, this strategy is especially popular in large university systems, where there is likely to be a branch office to fit almost any unanswerable question. This move allows us to cover our inadequacies with the highly respectable veneer of specialization. Referrals can also be made to another staff member (government documents librarians are a popular choice), to a non-library agency, or to some other off-stage source of information.

How Should I Know, This Is a Library. This less frequently used strategy rejects the question outright, or declares it out of bounds. Some librarians, for instance, may prefer to confine their labors to serious bibliographic ventures, and decline to answer such questions as "Who won the fifth race at Suffolk Downs today?"

Rejecting the question frequently means that it cannot be answered easily. Unless handled delicately, this strategy, while saving face for the librarian, can embarass the patron for having asked it in the first place. This technique can also be employed when the patron has been defined as crazy or unreasonable, or when the request involves the practice of law or medicine without a license.

How Soon Do You Need This? Sometimes we must admit that the question is legitimate, but that we can't find the answer right on the spot. The front is maintained by the assurance that given a little time, we might discover the solution, or, we might get an answer from that bigger library across town. If the patron needs his information immediately, the interaction ends on a note of dissatisfaction. Sometimes patrons will assuage the librarian's loss of face, saying something like "Oh, that's OK, thanks for trying." This wins a point for the patron, who is living up to his civil citizen role.

None of these strategies is inexorably linked to good or bad reference service, nor are we considering whether the answers provided or correct or incorrect, full or incomplete. If the social interactionist perspective is to be of any service, it should apply to all varieties of reference interaction and to service of any quality. Even the very best reference librarian will be using a selection of strategies to make points and dramatize her role. She may, in fact, be one of the more skillful actors on the team.

To follow this hypothetical transaction through to its conclusion would require several more stages. The first would be a more detailed examination of the lines taken by both parties in playing out the reference interview. Next, one would consider the manner in which the patron is transferred to the source or provided with the needed information. Finally, methods used to terminate the interaction would be of interest. Here one would again note the presence or absence of ritual exchanges, as well as any rules governing feedback or follow-up contacts.

The forgoing discussion has been confined to single interactions and to instances where the patron and librarian are relative strangers to one another. This represents, of course, only a very small slice of library life. The average reference librarian will have other responsibilities that take her away from the desk and into different patterns of interaction. Bibliographic instruction and computer searching, to name only two, both entail radically different settings and props, and may suggest alternative techniques of impression management. The librarian may well have a steady clientele with whom relationships must be cultivated and maintained. And almost certainly she is part of a team of staff members, which creates yet another set of role expectations and performance. For researchers who find the lens of microsociology to be a useful tool, library behavior provides a wealth of data for future investigations.

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MICROCOMPUTER SELECTION FOR ACADEMIC LIBRARIES: A GUIDE AND CHECKLIST OF METHODOLOGIES

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ABSTRACT

When considering purchase of a microcomputer in an academic library, many factors should be taken into account. The librarian should first determine the specific applications intended for the computer. Then he/she should develop strategies for evaluating the products on the market, including in-depth appraisals of the capabilities of the various brands, using the desirable features as a benchmark. Some methodologies by which to do this are offered in checklist form.

This paper is based on the previously acquired assumption that microcomputers are, in fact, an appropriate tool for handling many of the routine tasks which are a part of everyday life in the academic library. Having made that assumption, the paper will address some approaches to identifying the ideal microcomputer for a given library's use.

The methodologies suggested are not unique or innovative, but simply a codification of some readily identifiable processes into a coherent scheme.

Many libraries already have one or more microcomputers, and for those which do, that microcomputer is most likely an Apple. Nevertheless, the question can still be asked: "What is the best microcomputer for my library?"

The choices among micros are of sufficient number that a definitive answer to this question is nearly impossible. What I hope to offer are some suggestions as to how to best approach that question and to thereby better evaluate the options.

There are several areas which should be considered. First - what will the applications be? i.e., word processing, bookkeeping, etc. Then - what are the costs of the various hardware and software choices. Compatibility with existing systems or with predominating systems may be a consideration. Also, the potential obsolescence of the hardware should be a concern, just to cite a few examples. In addition to addressing these kinds of questions, this paper will also suggest some aids in your quest for the "perfect" system. Concluding remarks will offer some personal opinions and preferences.

Let's look first at applications. What the microcomputer will be used for should be the primary determining factor in evaluating all of the other elements under consideration. However, the bulk of micros will handle most common tasks (with varying degrees of ease, speed, and efficiency). So, one has to look not only at what the various systems will do, but how and how well. The particular microprocessor used in various micros influences their capabilities. By way of illustration, consider two of the widely used microprocessors. The 6502, which is used in the Apple //e and the Commodore 64, excels in providing for graphics features. So, for pie charts or illustrating Computer Assisted Instruction programs (a feature available with Apple's SuperPILOT CAI program), one might seriously consider a 6502 based machine. But if graphics is not an essential, or even desirable feature, then the slow operating speed of the 6502 may prove to be a nuisance. In that case, one might prefer to select a Z-80 based machine such as the Kaypro II. Other microprocessors, such as the pseudo-16 bit Intel 8088 found in the IBM-PC, offer both speed and graphics features.

The first step to selecting the micro best suited to your own needs is to simply sit down and make a list of all the things you want it to do for you, both the immediate and readily apparent uses, and those possible future uses you are only considering. Some of those uses are going to be general office management type tasks, for which there is a wide variety of software to choose from among all brands of micros, e.g., word processing/text editing, file management/database management, (wherein one can pull out selected items by a variety of access points), and spreadsheet bookkeeping. Then, there are educational uses, such as customized computer assisted instruction, and database searching, with a smart terminal that allows downloading and saving files for later use/manipulation. Last, but not least, there are library specific tasks, such as circulation record management and OCLC access. In the case of circulation record management, only the very small library would be able to operate using the capabilities of most micros.

Once you have compiled a list of all the uses you have, then you'll need to look at some of the offerings which are available to satisfy those needs. Before progressing to that stage, however, it might be advisable to consider other factors which might weigh in your decision.

Number one - How much do you have to spend? One can acquire a Commodore 64 for under $200; and by adding a disk drive and a printer, be up and running for about $1,000. But is that cost effective in the long run? Probably not. Going for low start up costs may just end up costing more in the long run, when the system proves to be inadequate for the intended needs.

Continuing up the price scale, you can choose from an Apple //e for $1,400, plus printer (add at least $400 there for a decent dot matrix printer, and a little more to go to letter quality). At the upper end of the micro range, not quite a mini - in terms of memory size and multiuser capacity - you can make an initial investment of $10,000 in hardware. You're always going to be adding bits and pieces, and as you may already be aware, the initial hardware costs are only the tip of the iceberg.

So, when you consider the costs, anticipate that you will spend more on software than hardware the first year, and plan to continue spending additional moneys on software and hardware add-on features (such as a modem or terminal package) at about the same rate for years to come. Make up your budget, figure out how much you plan to spend, then make sure you have an additional source of funds to draw on to supplement that amount - like, say, robbing the book budget.

Now, we know what we want to do, or at least let's assume that, and we have allocated X amount of dollars to go shopping. But wait! What are some other factors to consider before putting the bucks on the line?

A. Never forget the service after delivery aspect. This means two things. First, shop the established names in the business to increase your likelihood of long term satisfaction. These would include the household names in the industry - IBM, TRS-80, Apple, DEC, etc. If you get a better deal by going to a smaller, less established, firm, you may wake up one day to discover the company has gone under, and then you could have some service problems. Witness the Osborne computer failure of 1983. A good way to check on this is to look into th business reference resources, such as Value-line, Standard and Poors Corporation Records, and the Predicasts F & S Indexes for news articles, by company name.

Second, having identified some possible brands, find out where they're sold locally and ask those firms to provide you wih references, i.e., the names and addresses of customers who have purchased from them. Contact those people and see how well they are pleased with the follow-up service of the respective firms. The ready availablity of service can be a critical consideration, as anyone who has experienced down-time knows. Those readers who reside in smaller communities may have their options limited in this respect.

B. Another factor to consider is compatibility. If the library already has one or more micros, then the acquisition of additional compatible hardware may appear to be desirable. But this certainly shouldn't be the deciding factor. If those micros are several years old, you may be cheating yourself by not taking advantage of "state of the art" technologies. Obviously it's nice to be able to run old software on the new equipment, but you might want to consider designating the different systems for different tasks, thereby minimizing the "throwing good money after bad" syndrome. Obviously, the older your present hardware is, the less weight this factor should have.

There is a second kind of compatibility, and that is compatibility within a network of libraries, either formal or informal, whereby public domain software is shared among libraries. If this is a possibility for your particular situation, then this type of compatibility should be taken into account.

Third, there is the "clone" compatibility factor. IBM and Apple have both been cloned. Unlike Apple, IBM made its PC architecture public, so there are several clones to pick from, and generally at less cost, such as Compaq, Sanyo, and Eagle. One warning - it has been noted that while textual programs such as word processors are usually compatible, graphics programs frequently aren't. The degree of compatiblility varies from 40% with some brands to 90% with others. If graphics are essential, the extra cost of the original is probably warranted.

Fourth, there is a degree of inter-system compatibility among most Z-80 based computers, so that text files written to disk on one brand can be read from disk on another. The Z-80 is the microprocessor used by the well known CP/M operating system, considered the standard for eight bit systems. Many computers are now available with two microprocessors, one of which is 16 bit and the other an eight bit Z-80.

C. Yet another factor to consider is "state of the art"ness. These days, you might want to think twice about buying any micro which has been on the market in its present form for over two years. The rate of software development, especially for major manufacturers, is such that just about all essential categories of programs will be available by the time the product has been on the market for three to six months. Even the venerable IBM-PC is no longer considered state of the art, because it uses a pseudo-16 bit microprocessor. In spite of this it is still much faster than the more common eight bit microprocessors, like the 6502. And remember, doubling the number of bits allows the computer to address much more memory. A sixteen bit computer can access 512 K of internal memory as contrasted to a limit of 64 K for an eight bit machine.

D. The memory capacity of various micros varies significantly. And the options to add on additional disk storage capacity likewise ranges from suport of only one or two 150 KB disks up to 10 or 15 MB hard disk capability. So this is another area to consider, certainly.

Moreover, different computers may not have an equal amount of usable space, even though they appear to have equal amounts of memory. Different computers are structured in ways that make them less than equal in this respect. For example, two 64 KB computers will not offer the same amount of free, usable memory for your text because the same file handling routines may reside in ROM in one case and RAM in another. As an illustration - a 64 K Apple with the Applewriter word processing program in place leaves you about 27 K for your text, about thirteen pages. Whereas a 32 K Radio Shack Color Computer, which uses a ROMpack word processor, leaves just barely less than 32 K free for text. The Apple Macinosh leaves about 60 K of memory available for text. A limited amount of free text space can quickly get to be a real nuisance for anyone using the micro to work on a book length project. So, just knowing how much RAM a computer has isn't enough. You also have to find out how efficiently that RAM is used.

E. Color output is available from some computers such as the Apple //e as a standard feature, in others such as the IBM-PC it's an added cost option, and in yet others, such as the Macintosh and the Kaypro an unavailable feature. Consider whether you want to pay for having color, because it does come as a cost item, either in real dollars or as a trade off for features. The big question is, do you want, or need, color output. If you don't, why pay for it.

F. Other desirable features to consider are portability, modem support, i.e., the availability of 300, 1200, and/or 9600 baud rates, screen display features, and alternative input devices available, such as koala pads, light pens, voice control, and the ubiquitous mouse.

G. Then there is the keyboard! Many of the manufacturers seem to know very little about keyboard design. I personally look with most favor toward those keyboards which most closely emulate the IBM Selectric typewriter layout, simply because this allows for an easier transition for most users. The keyboard is not a feature given much consideration in most product reviews. But since it's your greatest point of contact, literally, with the computer, it is an extrememly important consideration. (I always like to "test drive" keyboards to see how they feel.)

H. Finally, you may want to give consideration to those brands of micros for which specific kinds of library software are available. In checking a recent software source catalog, I determined hat only one firm, Gryphon Systems, makes library oriented software for computers other than the Apple, IBM or Radio Shack. So, depending on what you want to do with your micro, this may be a factor in the selection process.

Having taken all of the above into consideration, you will want to make some judgments about which of them carries the most weight, given your particular situation. Then you can begin to do some in-earnest evaluations of specific products, weighing the respective features of each against your want list. To do that you have some help waiting in the wings.

In suggesting the various means of getting at the information, I will mention some fairly obvious things in order to try to develop a thorough checklist.

One - The advertising brochures and printed matter generated by the product manufacturers. Obviously, this information needs to be interpreted with the source in mind.

Two - Outside consultants. All academic institutions should have a math and/or computer science component. You should be able to identify at least one faculty member versed in micros to act as a consultant. You can contract for any level of consultation, from a one-two hour chat all the way to a massive process resulting in a detailed book length report. You alone can determine the extent to which you might wish to carrry such a process.

Three - Surveys of users. Either on your own or with a consultant's assistance, you could survey other, similar, libraries using micros. The American Library Directory provides automation information as supplied by the libraries. So you can readily identify a target audience for a survey. For example, that volume shows that Chadron State College (NE) uses an Apple III, Hastings College (NE) has an Apple II, and Midland Lutheran

College (NE) has an Apple, a TRS-80, and a DEC mini in use as of 1983.

Four - While not forgetting their bias, the information provided by those who sell the products can be noted and weighed in as part of the process.

Five - The printed sources. These are many and varied, so I will treat these categorically.

A. Indexes to the periodical/journal literature. Several options avail themselves here. Most, or all, of the following, would be of some use.

1. Business Periodicals Index and other business sources: both for articles about microcomputer applications to business functions and to articles pertaining to the various firms' economic well being and financial stability.

2. Consumer Product Indexes: product evaluations of micros that may be juseful, although the slant will be to the home users.

3. Microcomputer Index: here the focus is on journals dealing with specific products, such as Nibble and Rainbow, and also those which treat the industry as a whole, for example Creative Computing and Personal Computing. Incidently, Personal Computing

has a strong slant toward business applications.

4. Library Literature: this will get you back to articles you may have noted in passing. Now, when your needs for information are more specific, you can do an exhaustive search of all the articles that might be pertinent.

5. Education Indexes: Since we are operating in an educational setting, these are appropriate. ERIC, both RIE and CIJE, and Education Index may lead you to some useful items not indexed elsewhere.

B. Then, of course, there are the journals themselves. In addition to doing a literature search through the indexes, you can keep tabs on the latest news simply by identifying for yourself some useful journals and reading them regularly. You probably already do this, in fact. These journals will probably fall into one of the three following categories:

1. Library oriented
2. Computer oriented
3. A combination of the two.

Two titles which fall into the last category are - Access: microcomputers in libraries and Small Computers in Libraries.

Access is a quarterly publication originating in Oakridge, Oregon. Regular features include "Online," "Techtalk," "Concepts," and "Software." The spring 1983 issue has an extensive annotated bibliography of books and articles pertaining specifically to micro applications in libraries.

Small Computers in Libraries is a newsletter from the graduate library school of the University of Arizona. Articles are brief and, well, newsy.

Having done your homework, you can now, finally, do your shopping. I have, up to this time, not talked a great deal about specific brands and their good and bad features. I would now like to move into a less "academic" domain and offer some personal opinions, some of which are better founded than others.

I have observed that many of our libraries have Apple IIs or //e's. I don't know what factors weighed in the choice of this brand by the various libraries, (and we have several at our place, incidentally) but the Apple //e is probably not a good choice for several reasons. No truly sophisticated word processing package is available for the Apple, without the added expense of a Z-80 card. The 6502 microprocessor is relatively slow, and supports both graphics and color, features probably used very seldom in most library applications. The eight bit system is hardly state of the art now, with true 16 bit and even some 32 bit micros available now. In the current Apple line, the Macintosh or Lisa would be the computer of choice, even though the Mac is limited to 128 K of memory and uses non-standard 3 1/2" diskettes. The Mac and Lisa lack color, a non-essential but perhaps desirable feature. Personally I don't care much for mice and icons. Let me put that another way. I have a basic philosophical problem with the sort of "babying" that this constitutes. It doesn't take an intelligent person all that long to learn a few commands. The mouse is, at least in my opinion, just a cutesy device, which doesn't really add anything meaningful to the computer's capabilities after the first half hour. The mouse is basically a toy for non-computerists.

And none of the character sets that are offered for the Mac really appeal to my eye. But others may like them.

The IBM-PC line, with all its clones, is no longer state of the art, but there is an enormous amount of software support available. Something the Mac and Lisa still lack at this writing. IBM is certainly still a good basic choice, and will satisfy most, if not all, basic needs. I'd look closely at the financial stability of the clones before buying into any of those. One attractive offering at th present is the Sanyo, for $999.00 with one disk drive.

It has been observed that depth of product line increases the financial stability of computer firms. So beware of manufacturers with only one product. Remember Osborne? Those firms with a range of products, such as DEC, IBM, TRS-80, and to some extent Apple are more secure. Radio Shack has some good computers, but they have, in my opinion, very little talent for marketing their products. One advantage to their micros might be the ready availabilty of service centers. I would recommend looking closely at their offerings, especially the powerful 16 bit Tandy 2000.

A number of manufacturers with established product lines in related areas have recently jumped on the microcomputer bandwagon. A T & T seems to be the latest entry. Although such firms are clearly stable, I withhold judgment on the products. The few that I have looked at seem to suffer most from poor keyboard design. Perhaps they feel novelty is a plus factor?

In conclusion, the market is so volatile and new products are being introduced so rapidly that I will not attempt to recommend any choices, but instead simply collect together some points you might wish to keep in mind as you shop for a new micro.

USING THE MICROCOMPUTER FOR LIBRARY MANAGEMENT FUNCTIONS

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ABSTRACT

This is an account of how the Creighton University Health Sciences Library/Learning Resources Center successfully developed an extensive microcomputer program for management purposes. Goals, staff training, hardware utilized, software criteria, implementation, specific applications, evaluation, and future directions are addressed.

With your permission, I should like to add a subtitle to this document: A CASE OF MASSIVE MICROCOMPUTER ADDICTION. The Library in which I am ordinarily found has enjoyed success with the microcomputer approach during the past year. This is a case history of that success organized according to the following outline:

. General Considerations

. Predisposing Factors

. Dealing with Microcomputer Addiction

. Complicating Factors

. The Outcome

. Evaluation

. Prognosis.

General Considerations

In early 1983, the Creighton University Health Sciences Library/Learning Resources Center (HSL/LRC) was well established in an attractive, comfortable, and functional building especially constructed five years earlier for the delivery of informational services to the health science community.

Services were being utilized on an ever increasing basis. But no new staff positions had been added or would be added.

Even so, a committed, conscientious, and enthusiastic staff was determined to maintain a standard of excellence as it actively contributed to the achievement of the University's value-based goals and objectives.

HSL/LRC administration pondered the question -- How can the desired standard of excellence be maintained in spite of demands for more service correlated with a stabilized number of staff??

The answer was to be found in equipment that had been purchased several months earlier, and whose capabilities were totally unknown to most staff. That equipment, of course, was a microcomputer that was intended for computer-assisted instruction (CAI) purposes. The fact that it enjoyed only limited use by the public proved to be an advantage for a staff about to become microcomputer addicts!

Predisposing Factors

Thus, the ideal environment existed for the development of microcomputer addiction.

The building had been designed to accept technological advances with a minimum of structural modification. Power sources were positioned throughout the structure -- even in the floor. A minimum of permanent partitions contributed to the feeling of openness and flexibility.

The Library/LRC's public was accustomed to non-traditional approaches to information storage and disbursement. With the diversity of educational, research, and patient care programs, the public was encouraged to pursue needed information at the rate and in the fashion most appropriate for individual needs.

Staff appreciated suggestions for improvements to services and for subject areas needing more coverage. As staff became more skilled with bibliographic computer searching, it became more aggressive and determined to achieve its goal of acquiring a balanced collection. As staff became more skilled with anticipating user needs, the time was appropriate for identifying and dealing with new challenges.

Management determined that the microcomputer was ideally suited to demonstrate its posture of

. New vision

. New approaches to information control

. Imaginative leadership

. Dynamism

. Creativity.

What did management hope to accomplish with the microcomputer?

. Increased productivity

. Elimination of duplication

. Improvement of the quality of services

. Identification of developing trends

. Increased financial control.

How could these goals be accomplished without a substantial fiscal transfusion? In most settings the answer would be: Only with difficulty! But in this special setting, management was confident that the talented staff would find ways with or without the availability of funds.

Initial exposure to microcomputers occurred during a series of staff meetings and staff development programs. Staff, faculty, and computer experts exchanged ideas regarding the impact of evolving technology upon information systems.

Documents relating to all manner of computers, minicomputers, and microcomputers begin to invade the professional reading of the staff. Publications such as Personal Computing, Peelings, In Cider, Small Computers in Libraries, List and even the revered Library Journal were searched to broaden burgeoning knowledge bases.

In the meantime, the existing equipment (one Apple II+ with one disk drive) was placed on a cart and transported from one location to another according to a schedule designed to be responsive to both public and staff needs. Gradually, use of this equipment grew.

Dealing with Microcomputer Addiction

At weekly management meetings, microcomputer concerns were routinely placed on the agenda. Decisions were made on a contingency basis and certainly were reversed rather frequently. Typical concerns were -

- Who will be allowed to use the microcomputer?
- Who will train interested staff?
- Should staff be expected to train co-workers?
- Should the Library/LRC train the public in microcomputer use?
- What training software is available?
- What criteria should be applied to potential software purchases?
- What funds should be used for software purchases?

If this sounds chaotic, it was!

When competition for use of the microcomputer intensified, a second Apple (the IIe complete with two disk drives and a printer) was purchased. The user's schedule was revised many times in an effort to equalize access for those desiring to use it.

In response to the need and desire to learn, a highly motivated, talented, and persevering staff trained themselves with the aid of software that was acquired piecemeal.

VisiCalc was the first software package purchased. Upon the dealer's recommendation, an hour's demonstration of VisiCalc's features introduced staff to it. It soon became apparent that mastery of that software would require more than a one hour demonstration.

A donor was found to purchase software that was selected chiefly according to recommendations from other microcomputer enthusiasts. Classified ads in computer magazines were scanned in order to take advantage of special prices.

Eventually, purchase of the PFS series proved to be beneficial. Used in combination, the four separate units (File, Report, Graph, and Write) provided the flexible and yet coordinated approach that staff desired.

Complicating Factors

Staff had many opportunities to develop its communication skills in discussing pitfalls that emerged. At times, conversations focused on the necessity of making back-up disks to minimize the trauma that can accompany the loss of data if power is suddenly cut off.

The limited number of commercial software packages applicable to Library/LRC needs stimulated staff to be always on the alert for appropriate packages to acquire.

When software was ordered, staff quickly learned the necessity of specifying the type of microcomputer with which software would be used.

Without a clearly written manual, the task of becoming acquainted with unfamiliar software can be time-consuming.

The Outcome

What are the products that have emerged from this microcomputer addiction? Let's take them by department.

Administration

ANNUAL REPORT - PFS WRITE is being used to store the text of the Annual Report that is published by the Library/LRC.

PROFESSIONAL ACTIVITIES - PFS FILE is being used to record individual staff development endeavors.

CORRELATION OF MONOGRAPH ACQUISITION AND UTILIZATION - VISICALC is used to compare the acquisition and circulation rate of monographs coded by NLM classification number.

KEY INVENTORY - PFS FILE and PFS REPORT are used to maintain a record of keys given to staff members. Lists can be produced according to 1) key holder and 2) key description.

STAFF DIRECTORY - PFS WRITE is used to update an internal listing of personnel, departmental affiliation, and phone number.

OCTANET BORROWS - PFS FILE and PFS REPORT are used to list journal titles borrowed and the number of times borrowed on interlibrary loan.

REQUESTS FOR NEW JOURNAL SUBSCRIPTIONS - PFS FILE is used to record these requests.

PHOTOCOPY AND INTERLIBRARY LOAN BILLING - PFS FILE is used to generate invoices for charges made by each health science school, sorting by department.

DATA PROCESSING EXPENDITURES - PFS FILE is used to maintain a record of these expenditures according to month and vendor.

STATISTICAL GRAPHS - PFS GRAPH is used for the production of line, bar, and pie graphs illustrating volume of operational activity in various departments.

AV CATALOG - PFS FILE is used for maintenance of the mailing list and storage of billing information relating to this LRC publication.

Technical Services

BINDERY LIST - PFS FILE and PFS REPORT are used to prepare a composite list of journal titles that have been sent to the bindery.

SERIAL HOLDINGS ARRANGED BY SUBJECT - PFS FILE is used to generate a list of serials currently received listed alphabetically by subject. Each title is assigned a maximum of five subject headings.

STUDENT ASSISTANT WORK SCHEDULE AND TIMESHEET - VISICALC is used in generating a spreadsheet for task assignment and for recording the number of hours worked.

MISSING ISSUES LIST - PFS FILE is used to manage records of lacunae in the serial collection. Lists are sent to back issue dealers. As issues and volumes are acquired, the master list is readily updated.

Public Services

RESERVE HOLDINGS - PFS FILE is used to list this special collection. Data input includes author, title, call number, publication date, instructor's name, course name, and course number.

BORROWERS REGISTER - PFS FILE is used to maintain current records of HSL/LRC borrowers whose names do not appear on personnel listings distributed by the University.

How does staff feel about this opportunity that the microcomputer provides for growth, self actualization, and self transcendence?

If the above list of staff designed (or modified) software is any indication, there is no doubt that staff morale is on the upswing. True, not all personnel are yet committed to the microcomputer in equivalent degrees. But the number grows perceptively as new applications are identified.

As staff has gained experience with software, these criteria emerged as standards for evaluating possible purchases:

. Demonstrated need

. Compatibility with existing equipment

. Cost effectiveness

. Multi-discipline applicability

. Content validity

. Easily understood instructions and/or manual

- Immediate feedback and positive reinforcement
- Technical support availability from vendor
- Customer satisfaction.

CONCLUSION

Evaluation

Thus, in a relatively short timespan, staff committed to information management by microcomputer has accomplished its identified goals.

During the past year, the volume of services being provided has increased. Staff is spending less time compiling and retrieving management information that was formerly collected, recorded, and analyzed by manual methods.

The microcomputer facilitates editing and updating of data so that repetitive typing of the annual report, for instance, has been virtually eliminated.

Staff continues to receive accolades for the excellent service it is providing. The public continues to express its appreciation with written communications, flowers, and candy!

PFS Graph has been especially valuable for identifying developing trends. In particular, staff is noting service patterns of the daytime hours and the evening hours so that needed changes in services and staffing can be made appropriately.

Fiscal control is an area of great importance to all libraries. VisiCalc and the PFS series now allow staff to monitor closely expenditures as well as revenues.

PROGNOSIS

So has one library staff arrived at Utopia? We hope not.

True, initial goals have been accomplished, but we know that our operational environment will continue to change.

Accordingly, we expect to continue to change.

We anticipate that more and more functions will become microcomputer based. Indeed, there are some functions we have not yet tackled -- online searching, data transmission, and SDI, to name but a few.

We are preparing for more staff involvement in the educational process -- especially in self-instruction.

We look forward eagerly to the arrival of an online management system geared toward public needs. We want to share to the fullest the Library/LRC's resources with users whether they are located within the building, elsewhere on campus, or several hundred miles distant.

We know that the phenomenon of staffing will also change. With the passage of time, some staff will acquire new skills that will lead to career changes. Some individuals will tire of communicating in a non-verbal fashion. Perhaps the voice activated microcomputer will be welcome to them.

Yes, we feel that more opportunities are awaiting us. In the meantime, we are enjoying our kudos, chocolates, and chrysanthemums!